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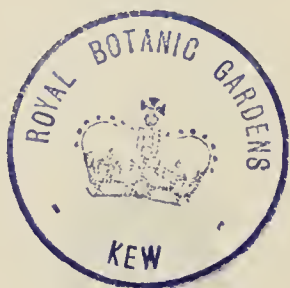
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TO OUR READERS.

A WORD of late has become unpleasantly common—almost fashionable; yet we fear it is in too many instances the embodiment of truth. That word is Depression. With whatever force, however, it applies to agriculture and some branches of trade, we are gladdened to feel it does not apply to gardening in its broadest sense nor to gardening literature.

There have been reductions in large garden establishments which we deplore, yet we are convinced there are more persons who delight in gardening and practise it now than at any previous period in the history of husbandry, and that is as old as the world; while garden literature was never so acceptable as it is at the present time—so liberally provided, and so pleasantly and, we trust, profitably perused. In this respect the “appetite” has indeed “grown with what it feeds upon.”

It is one of our privileges to know that we have had a gratifying share in creating a taste for gardening, and in not only maintaining but improving that taste. Our pupils, not a few, have become teachers, each the centre of a circle. By their influence our country has become acknowledged as a land of gardens, and in towns and villages horticulture in some of its branches is practised with an earnestness that was never seen before.

Such fruits of persistent effort and earnest labour are most encouraging, not to us only, though we ought to rank amongst the most grateful, but to those who by their talents and their skill, and above all by their readiness to impart of their knowledge, have had so large a share in achieving such a great measure of good.

With their continued aid, which we know is ever at our command, and their experience, which is the best the nation affords, we shall pursue our course hopefully; because, as we have said before, and we are more than ever fortified with evidence of the fact, “our sphere of usefulness widens as we go, and the materials for effecting our purposes increase around us as we advance;” and these are our purposes—improving gardening by every means at our disposal, and rendering the surroundings of British homes more attractive and enjoyable.



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6th	F	
7th	S	
8th	SUN	1ST SUNDAY AFTER EPIPHANY.
9th	M	Royal Horticultural Society. Fruit and Floral Committees at Society of Arts at 8 P.M. [11 A.M.]
10th	TU	
11th	W	

ANOTHER NEW YEAR.

I SIT down for the eighteenth time to write the opening article for the new year of the periodical which, in words of attachment and familiarity, we here have been long accustomed to call "our Journal." I own I begin with mingled feelings. Thoughts of past years come over me, and of past writers which now this paper and this world equally know not. I ask myself, Can I write anything new or fresh? and is there not a younger hand ready to do the work better? But I obey orders, and that makes me ready and willing; nay, in the bottom of my heart I must own I have a secret and sweet pleasure in addressing, as Chaplain, my larger congregation.

Brother amateur gardeners and professionals, whose society I always seek, and whose calling I half envy—lovers of nature trimmed and put in order by skilled art—lovers of field and farm—fanciers and cherishers of bird and beast—to you, then, I once more write while the pulse of the old year's growing more and more feeble, and the frost on the pane and the whitened ground seem to have suddenly come to be suited to his burial. As the world's wheels move faster and faster, and the strife and the struggle for success become more intense and fierce, the human heart seems to long more and more for some quiet resource away from business—something on which the mind and affections can rest undisturbed.

Two lives of men very eminent in their different callings have during the last year appeared. One that of the persevering and determined-to-be-successful Lord Campbell, who did everything a lawyer could do, and died in harness as Lord Chancellor. The other, of perhaps the greatest bishop of the century, Connop Thirlwall of St. David's. In the life of each we see how the mind of even men of their eminence delights to recruit and refresh itself with country pursuits, and even hobbies. Lord Campbell on coming to reside at his recently bought Scotch estate thus wrote—"The house, garden, and pleasure grounds are in a state of neglect. I begin with some zeal to repair and improve. Though a decided lover of London life, I am by no means insensible to the beauties of Nature; and although I could not write a treatise *de utilitate stercoreandi*, I have great delight in gardening. I have even a little farm in my own hands, and my heart swells within me when my Turnips are praised as the most luxuriant, and my stooks are declared to be the best to be seen in Teviotdale." Thus we see how the hard-headed ambitious lawyer turned with delight to a garden and a farm for genuine pleasure. But in regard to the bishop, a man of still higher class of mind, who

might be thought to be above any love of pets, it is stated that he was exceedingly fond of dogs, cats, pheasants, and canaries; and after breakfast he usually fed his geese, which flocked round him and tugged at his coat.

Men of such exalted intellects found solace and delight in such things; but it pleases me even still more that the delights of garden and home surroundings are open to and enjoyed by the humblest. I like to think of widely extended pleasures; of the retired small tradesman, the mechanic, and the day labourer—all having a resource and a pleasure in the same thing. The recent census proved one thing to be true, that gardeners live longest, except agricultural labourers, and the length of the lives of the latter depend simply upon their sobriety or the reverse. Yes, alas! when the drink fiend comes in, then the lives of those who follow even the healthiest occupations are shortened; but granted sobriety, and those who work on God's earth live the longest. Perhaps in addition to open air, the wondrous quiet life a gardener leads makes it the longest. Thinking, pausing, planning, working in hope; knowing, though he cannot command success, yet he will try for it; he continues to hope for the best, for the very essence of a gardener's life is hope rooted in labour and trained by love. Is not such a life—when one thinks of the din and noise, and bad air in which so many labour with hand or brain—a life to be envied and praised?

It is with pleasure we see how the gardener is invading the town. We see his progress particularly in London. Battersea Fields, desolate and even loathsome, have long since become a beautiful park; and beds of flowers glow and gladden even in places where rushing and roaring traffic is thickest and loudest. Then how near to London, Manchester, and Birmingham the gardener has made his way and holds his ground! But in regard to suburban gardening I met with an idea which pleased me much, and which I should like to see take root in the public mind. It is, that instead of foreign shrubs being always planted in endless repetition in suburban gardens, that our own home products of shrub and tree should be there. I say, Plant English trees instead of foreign. Why an endless repetition of Monkey Puzzlers, Rhododendrons, Sumachs, Laurels, and so on? Why not try trees where English birds will build? (they won't in a Monkey Puzzler!) Why not plant English Hawthorns? What tree is prettier in May? They would remind the man obliged to live near London of the true and real country where he was born. If a tree is wanted, what better than the Lime, "the murmurous haunt of summer bees?" Then there is the old English Crab. Did evergreen, however far distant be its home, ever equal an English Crab when in blossom? Then there is the common Briar. Can anything be prettier than a curved branch laden with flowers, swinging in the summer sun or wet with morning dew? Barberry, Furze, and wild Broom might also be planted. If such trees and shrubs were planted sameness and stiffness would be avoided, and a pleasant English air be spread over all. If there is room for actual trees let the Elm and Oak be planted, and even I would not mind the Ash. All birds love these; and if you have room for a shady walk let it be one of Filberts. At any rate have done with Cedars, and Conifers, and Laurels ONLY. The idea of planting trees in streets is being carried out not only in London but in other large places. Portsmouth, thirty years ago one of the dirtiest and most loathsome of towns, has become pleasant and very healthy owing to the old close streets

being pulled down and trees planted in the broad ways. While in beautiful Bath, perhaps the most handsome street in England—viz., Pulteney Street, will have its beauty increased by a row of trees on each side; while one of the great charms of Cheltenham has for years been the rows of trees growing in the streets. Thus on all hands we see how the gardener is making his way, not only near but into the very heart of our metropolis and big towns. May he go on in his beneficent work, giving pleasure and promoting health.

We are yet far behind some other nations in the general cultivation of flowers. Take, for instance, the description given by a traveller of Tunis in Africa, where now, alas! a European power is carrying on war. Speaking of the carnival there one writes—"Not only were there, as is usual at such times, lines of carriages filled with well-dressed ladies and pretty children, but the vehicles of all sorts were piled with bouquets, and there was a perfect storm of flowers in the air. There were the boys—real street arabs—darting in and out among the carriage wheels, picking up the fallen flowers to pelt each other; but one flower, often the freshest and handsomest, was invariably reserved by the lucky finder for his own personal decoration and refreshment. The Tunisian Arabs have a passion for flowers, and as soon as their spring commences even the poorest and raggedest may be seen with a delicately scented blossom stuck above his ear, the stalk resting amid the folds of his turban, and the flower projecting forwards over his dark cheek. These people will almost go without bread to buy flowers; and there is something in the sight of a gaunt toil-worn Arab, whose garments consist of coarse sacking and a ragged old turban, yet with a bunch of delicate spring blossoms drooping their cool freshness against his swarthy cheek, which stirs a strange mingling of sympathy, and pity, and admiration." Such is the love of the Tunisian for flowers; may an equal love grow and prosper in the heart of Englishmen.

That last word brings us home, and to home thoughts and duties. This has in England been a grand fruit season, especially as regards the hardy, and therefore more useful fruits. Let me quote words which have already appeared in this Journal, words from the Royal Commissioners on Agriculture—"The cultivation of fruit may with great advantage be extended, more particularly Strawberries, Raspberries, Currants, and Gooseberries. There need be no limit to their growth in consequence of the demand from jam factories in London, Liverpool, Manchester, Glasgow, and other large places. Some of these factories make 15 tons daily, and it is calculated that at least 400 tons are made daily throughout the fruit season, including all parts of the kingdom. The Board of Trade returns show that the raw fruit imported into this country in 1876 amounted to 9,379,779 bushels, valued at £1,218,625. Why should we not grow, as far as our climate will allow us, a large portion of the fruits required in the future?" Why should we not, indeed?

And now before I draw to a conclusion I must say a few words to young men, to young gardeners especially. I hope all read with care and pleasure—I did with both—the autobiography of Mr. Pettigrew, which with excellent taste and worthy motives, I am sure, he gave us in the number for September 8th. Turn to it, young men, if you chance to have missed or forgotten that article. From that autobiography let me draw a few lessons for use. Mark Mr. Pettigrew's regrets upon thinking of the three years he wasted at the beginning of his life—regrets for years wasted. Then he records that he left that place "a conceited young man." So true it is that ignorance is the father of conceit, knowledge of modesty. Then mark how improvement came. He met with young men, lads of only nine months' apprenticeship, who knew more than he did after his three years. This discovery made him work. He read good and improving books—works that taught him to use correct English. Next came a delight in studying works of horticulture. Knowledge went on increasing; he read scientific works on his own profession, then books of a wider range. No wasting of time now; no regrets; but he writes—so "two years of my glorious youthful prime were spent (mark the word), not wasted, at Hampstead." Mr. Pettigrew made himself agreeable to those with whom he came in contact; this raised in others an interest in him. Notice that, young

men. I like what he says—"I owe a great deal to Mr. Thomson of Clovenfords, more to his first wife, who was an excellent woman, and interested in my welfare." She would not have been had he not made himself agreeable. Cultivate that gift of being agreeable to all. A good woman, too, helped him. Women, always more unselfish than men, give youths who behave well and strive hard many a word and look for their good—words of advice and looks of encouragement to labour on. But let us go on. See next how study gave power to write for the press. This brought Mr. Pettigrew into notice. He had his ups and downs in various situations, his trials and sorrows, as we all have; but by perseverance and cultivating the gift of pleasing he is able to write—"As I had not failed to please other employers, so I was determined always to please." Study and industry bring him at length to be able to be his own master. "He builds his dwelling-house and greenhouse in his own nursery, and works hard and does well." Now, young gardeners, read this autobiography aright, which means for your own benefit, and I say, As he did, so do—"Go, thou, and do likewise."

And now my space—the space kindly given me for now eighteen years—must, I feel, be almost exceeded. I thank the Editor for thus allowing me once a year an opportunity of saying a kindly word and giving words of advice, a little out of the usual run of gardening articles, but always, as I have found, received, as I give them, with feelings of regard.

I cannot do better than conclude with one of the best and most comprehensive of wishes for the season—"Many happy new years to all; unbroken friendships; great accumulation of cheerful recollections; affection on earth, and heaven at last."—WILTSHIRE RECTOR.

POINSETTIA PULCHERRIMA.

Of all winter-flowering plants I know none to equal Poinsettias, and it is surprising they are not grown in greater numbers than they are at the present time. We have a lean-to house full of them, and during the last fortnight they have been most imposing, with hundreds of bright vermilion bracts in heads averaging 16 to 18 inches in diameter. They are also useful for cutting for indoor decoration, as, although when cut with a long stem they soon flag, if their heads are taken off close under the bracts, or these are taken separately and employed in low glasses or flat dishes, they will keep well for more than a week. A pretty effect is produced when the bracts are employed entire and laid on flat dishes which have been previously covered with Selaginellas, a few white Chrysanthemums and Roman Hyacinths or Lily of the Valley being sparingly intermixed with a margin of Maidenhair Fern, and a few sprays of Briza minima or other grasses placed lightly over the whole, as the bright colour of the Poinsettia contrasts so charmingly with the white cloth of the dinner table, and is also a decided change from the orthodox mode of arrangement.

After flowering the plants are stored away under a stage in an intermediate house and kept dry at the roots. About the end of March or beginning of April they are brought out and the tops are cut off, but only down to well-ripened wood, the object being to have as many eyes on the plant as possible. They are then started in a temperature of about 55° or 60° without repotting, and syringed three or four times a day to enable them to break freely. The top bud will start first. When the young growths are about 6 inches long a close frame is prepared in a cucumber or other warm house. The required number of 3-inch pots are filled with a mixture of sharp sand and leaf soil finely sifted. When all is ready the cuttings are taken off with a sharp knife, each cutting having a piece of the old wood or a heel attached. They are then inserted one in each pot and plunged in the frame before prepared, well watered, and the light placed on. Care must be taken that the cuttings do not flag. The frame is kept close and the cuttings syringed morning and evening. In about a fortnight they will be rooted and may be gradually exposed. By that time the plants will have produced more shoots, which will be ready to be taken and treated as above. Thus about a dozen old plants will produce a hundred or more cuttings. When the pots are well filled with roots we repot the plants into 6 or 7-inch pots, employing a compost of two parts good fibrous loam, one part leaf soil, and one part decayed manure and sharp sand.

A moderate hotbed of fresh manure and leaves is then prepared in an ordinary brick frame, such as is used for Cucumbers in summer. The pots are plunged in the bed and the lights

tilted a little at first, but gradually lifted back and front to allow a free circulation of air amongst the plants night and day. Thus whilst the tops are virtually in the open air the roots are encouraged by the bottom heat, which will gradually cool down until nearly cold. By this treatment they will soon become strong, short-jointed, and sturdy, with abundance of fine foliage, and without such you cannot obtain extra large bracts. Each batch of cuttings is treated in the same manner. The result is, that those struck first are the tallest, the second the next, and so on, thus securing plants suitable for all purposes. About the middle of September, when the nights become cold, the plants are removed to a cool house and placed as near the glass as possible to prevent them being drawn. Care must be taken not to allow the soil to become dry, or the plants will soon lose their lower leaves. Towards the middle of October they will show flower; that is the time to assist them. Remove them to the stove, and give them a liberal supply of liquid manure. We employ guano about 2 ozs. to a gallon of water, with which we water them three times a week. The result is, as I have before stated, heads of bracts are obtained 16 to 18 inches in diameter, the largest I have measured this season being 19 inches. A few old plants may be pruned close back in the spring, and after they have started into growth turn them out and reduce the balls, again potting in the same sized pots, using the compost as recommended above. These can be grown in any convenient place. About the beginning of September the tops may be taken and struck as recommended above; they must be afterwards kept in a stove close to the glass. These form bracts when from a foot to 18 inches high, but will not be so fine as those struck earlier, but are, nevertheless, very useful for room decoration.

Another method I have tried successfully is, when pruning in spring to cut the old wood into lengths containing two or three eyes, inserting them thickly in 5 or 6-inch pots, and striking them in any warm house. They are afterwards hardened off and kept in a cool frame until September, not having been divided. We then transfer them to pots three or four sizes larger, care being taken not to disturb the ball or injure the roots, and they are plunged in bottom heat. These make grand bushes. We have one specimen thus treated bearing twenty-two heads, but not so fine as those grown singly.—WM. PLANT.

[The head accompanying this communication was very fine, the colour of the bracts unusually rich, and the leaves large and healthy.—ED.]

THEORIES IN VINE CULTURE.

I HAVE not the least objection to state all I know on any point raised in this discussion, even though some of such statements may be used in argument against me. First, then, I can assure "SINGLE-HANDED" and others, if there are any others to be assured, that roots do correspond to the top growth, and that anything you do to one end of the plant affects the other. Gross top growth generally produces gross roots, and the other extreme likewise produces corresponding results. That your correspondent should say this "is one of the most singular things he ever heard of," is very singular to me, for the thing is so palpable that argument in its favour is waste of time and space.

In the next paragraph your correspondent takes exception to my assertion that "thin foliage which cannot be acted on by the light assists to manufacture crude material which it cannot assist in elaborating." Does any man deny that every leaf which has a particle of green in it assists in the manufacturing of supplies? And again, is it reasonable to suppose that a leaf which is not acted on by the light, which is consequently deficient in chlorophyll and other essentials, should produce such perfect material as those leaves which are more favourably situated? I cannot afford to wait for what your correspondent is pleased to call science on such points as these, but I use such common sense as I happen to be possessed of, and if I am successful I have no fear but that science will follow. The fact is, science as applied to horticulture has been rather laggard in our day, necessitating some practical men to move out of the beaten track and to make their own science in a great measure.

Your correspondent denies the analogy between training Vines and training children. I may tell him that the comparison is not new, and was first made by a cleverer head than mine. Because I do not carry the comparison to the point of decapitation, is no argument against the first part of the training recommended; but I can go further than I have done if it will please your correspondent, and say that people used to gorge themselves to the extreme and then resort to the nearest surgeon or village barber for relief. But that time is over; people now eat and drink more moderately, and the village barber consequently needs one

accomplishment the less. This good time is not come to the Vines and fruit trees yet; they are still fed up by many people merely to be hacked about, but it will come in spite of "SINGLE-HANDED."

In the following paragraph your correspondent denies the accuracy of my statement when I say that "it is not known to 'SINGLE-HANDED' that the roots of a healthy Vine continue active long after the leaves have fallen." Now it is quite true that your correspondent ought to have a better estimate of his stores of knowledge than I can possibly form, but how are we to reconcile the statements made at p. 420-1 with those made in your last issue? In the former paper we read "Until Vines have made leaves working roots are not wanted; they must both work together." And again, "The idea that Vines when extending their shoots in spring need support leads many to apply liquid manure to their borders, when neither leaves nor roots are working. They do need support, and should be primed with it in autumn, and if it is not then available there, it is not available anywhere." Now it appears to me that this justifies my assertion quoted above, and I must confess that your correspondent making his *débüt* in last week's issue as an advocate of the plan he condemned—nay, almost ridiculed only a month ago, appears somewhat extraordinary; and unless he can make the two articles harmonise better than they now do in my mind, I fear I shall not be able to follow him.—WM. TAYLOR.

IN the reply to Mr. Taylor, at page 581, there is a rather important printer's error. I am made to say that "I do not think that the roots of a Vine 20 feet long will differ, except in *quality*, from one 10 feet, if both are in similar soil and equally ripened." *Quantity* was the word I wrote, which makes all the difference.—SINGLE-HANDED.

IF Mr. Iggulden had carefully read my last communication he would have found the Vines to which I made reference had been grown on the same principle ever since they were planted, fourteen years ago. If their present condition has nothing to do with young Vines, it proves anything but the "unsoundness" of the system, and that Vines thus grown are capable of producing crops of fine fruit for a series of years without becoming exhausted in their early stages. The growth is also allowed equal liberty at the top as well as the bottom. Mr. Iggulden evidently questions the soundness of the statement from Mr. Thomson's book because he did not fruit the canes to which I alluded. I can, however, point to a Vine of Madresfield Court planted in April, 1879, which was a thin puny cane at the time. The Vine was planted in an inside border and the cane taken into the adjoining house. To accomplish this the cane had to be left its full length, 8 feet. Growth started from the base which was encouraged, and from the five eyes inside the house, these were allowed to extend 4 feet and were then stopped. The whole of the shoots afterwards extended the length of the house, 35 feet. At pruning each of the five canes was left 3 feet long. If the statement of restricted growers is right, some roots in this case must have died. This Vine was fruited in 1880 a little, and this year carried fifteen bunches, and I am under the mark when I say 30 lbs. of Grapes. Some of these Grapes were staged at an exhibition in July, and were awarded a high position. The stem is now 3½ inches in circumference. I have watched this Vine with deep interest, and hope to do so until it fills the space allotted to it. I now ask those who advocate restriction on a far greater and severer scale than Mr. Iggulden, if the Vines they grow with 8 or 10-foot canes in a season could have carried without injury or exhaustion the same weight of Grapes the third year? If their Vines can, I will at once admit that one system is equal to the other, and that we grow wood unnecessarily.

Mr. Iggulden has thrown some light upon the subject, on page 514, where he says he plants Vines 4 feet apart. It is a wonder he had not thought to state this earlier. How can he argue in favour of restriction when he does not subject his Vines to restrictive principles? Each Vine being allowed a lateral development of 4 feet, therefore each Vine is allowed as much leaf-growth as those who have allowed them to extend liberally top and bottom. It is but recently we heard of Vines being planted 4 feet apart, but when only planted 3 feet, as is general, and temporary ones between them, it requires good growth at top and bottom to equal the lateral development allowed by Mr. Iggulden. Can Mr. Iggulden say that Vines grown as he advocates are not as liable (proportionately) to make gross roots as those that are allowed more liberty of growth? If planted in a border entirely made at the commencement, and lifted after a few years, would they not have long, strong, fibreless roots? Both Messrs. Iggulden and Taylor know well it is the nature of a Vine to ramble through the border whether restricted or unrestricted

(the distance, of course, depending upon the leaf-growth allowed). In growing a pot Vine the roots are first like small quills until they have extended well round the sides of the pots, then fibres commence forming. If planted out and grown exactly on the same principle, those roots would extend a considerable distance without a fibre—much more so than when grown in pots. When borders are made gradually these roots have not a chance of extending far fibreless, for as soon as they push through the turf to the air they commence forming hundreds of fibry roots. If not mistaken for "Box bushes," they might be for door mats.

Mr. Taylor is a little mistaken if he thinks I am an advocate for restriction when Vines have attained a few years of age, or say when they are in a fruiting stage to the top of the house. It is in this stage and onwards that I believe liberty of growth is of the utmost importance, and assists the Vines to carry good crops of fine fruit without bringing them to a standstill, which is the case sooner or later when unduly restricted year after year. I have had to recruit exhausted Vines from heavy crops and restriction. Abundance of growth has been the means of restoring the Vines to vigour and fruitfulness, and they yearly improve.

"AN OLD GROWER" has no proof that I grow canes 30 to 40 feet long, and even if I did such a Vine would be better fitted to carry a greater weight of Grapes than Vines severely restricted to 10 feet. "AN OLD GROWER" failed to tell us how he pruned his established Vines, but admits he removes 2 feet of the best buds from his canes, so that I am right after all in the conclusions I arrived at. How "AN OLD GROWER" can claim comparison between his severely restricted system and the more liberal treatment advocated by Mr. Iggulden I am at a loss to know. In his first notes he scarcely knows which course to pursue, and on page 452 lays to Mr. Iggulden's charge "undue" restriction, and yet follows a system himself no longer tolerated by the majority of good Grape-growers. He has, however, a companion in Mr. R. Inglis, who grows his rods about the same length because he is compelled—in fact, grows them more after the style of Raspberries, with the old stems or stools below the stage, if I remember the substance of his article in a contemporary of a few years ago; the present year's fruiting wood being cut away as soon as the fruit is ripe and before the foliage shows signs of maturity, in order to concentrate the sap into the young canes left. I should much like to know from Mr. Inglis if the roots do not die with this kind of treatment. Both "AN OLD GROWER" and Mr. Inglis must think I have only a poor conception of what a Vine requires for food, for they evidently conclude, after the few ashes are returned to the border, the Vines require no further assistance for some indefinite period. I wonder what the same amount of ashes would do for the Vines treated by Mr. Inglis above referred to, or "AN OLD GROWER" in producing his 10-foot canes and show Grapes.

The supporters of restriction have said much about the material taken out of the border by allowing a liberal development of foliage. They would have us believe a Vine border (under our liberal system of growing Vines) would be thoroughly exhausted and require renewing about the time the Vines are in a fruit-bearing condition to the top of the house. If true, Vine-growing under such a system would prove too costly an operation, and any system would be acceptable to avoid such a state of things. It is necessary for them to prove to us by facts that it is really so. I am inclined to think what is not taken out of the border by the Vines after a number of years, if grown on restricted principles, would be washed out by constantly soaking the border. It is a question if a border would not supply food to the Vines as long when unrestricted as when a 10-foot-cane system is resorted to.

W. BARDNEY.

USEFUL POTATOES.

Two or three years ago I thought that I knew very much about Potatoes, for I had experimented with them in cultivating and specially manuring them, cutting to single eyes, thinning the shoots, and so forth. Now, although in the meanwhile I have learned much more, I am inclined to think that I have more still to learn about Potatoes and their peculiarities.

In reading the different letters that have lately appeared one thing is strikingly apparent—the writers differ as widely as possible in their estimate and descriptions of the different varieties. The result of this is, readers generally, who wish to know what to grow and what to avoid, are hopelessly puzzled, and regard the communications as untrustworthy, which they undoubtedly are, even though as undoubtedly candid. The fact is, soil, season, and climate so affect the characters of even the most constant Potatoes that, except in the case of a few generally approved sorts, it is difficult if not impossible to fully ascertain what any

variety is worth. The only way any grower can ascertain what will suit his soil and district is to grow a few of the most approved sorts for a year or two, and then select two or three suitable kinds. We say they should be grown for a year or two, because a good Potato may be injuriously affected either by excessive drought or wet. Even ordinary seasons will not fully prove the value of any Potato.

The year of the American Centennial we received from New York about a dozen kinds of American Potatoes, the names of which we had not even heard till then. Most turned out to be inferior. One, very like Early Rose, but more robust, two weeks later and a heavy cropper, proved of very fine quality. This was in a warm dry year. The year following, the season and the variety were exactly the opposite. Then, again, it was everything that could be desired, except being peculiarly liable to disease; but this season, a very cold one here, it is quite useless. In a warm climate it would, we doubt not, be generally praised; in a cold one generally condemned.

Many opinions have from time to time been published concerning Magnum Bonum, but these have been very conflicting. There are some points, however, on which all are agreed. One is, that it withstands disease wonderfully. That is a valuable quality, for in some seasons Potatoes have been so scarce that poor people could not purchase them, but who would be very glad to have Magnum Bonum even though second-rate. The next is that it is a wonderful cropper. That, again, is a good quality, for many otherwise good are such poor croppers as make them anything but profitable, and too many have to consider when planting their Potatoes whether the crop will pay or not.

Some say the quality of Magnum Bonum is first-rate, others that it is waxy. The quality depends to some extent on the cultivation, and we think many make the mistake of lifting their crop before it is mature. Again and again we have read accounts in the Journal and elsewhere of people lifting their Magnum Bonum weeks before ours were ripe; and such persons invariably make part of their report say that the quality is inferior. No one who lifts either it or Champion till the leaves have become ripe or faded, or been killed by frost, should speak about the quality of the produce.

Another fact is, they are planted, too often, much too closely. Planting Potatoes so closely that ultimately the stems become interlaced is a sure way of preventing strong-growing late Potatoes maturing properly, and it is nonsense in such cases to blame the Potatoes. The cultivator is to blame.

In fairly good seasons Magnum Bonum when planted at sufficient distances apart is always of first-rate quality here. In seasons like 1881 it is inferior, but how can a late Potato be otherwise when the corn harvest was not quite over in October? To judge it in such a year would be unfair. Even at its worst we think it valuable. When others are scarce it is plentiful, and, though not quite first-class, it is by no means despicable.

One quality it possesses which has not been turned to good account by growers. Properly cared for it is as good in June and July as in January, and is infinitely preferable for food to the green rubbish for which Dutchmen and others receive our money, or even to the green Potatoes from our own fields. When the public know that such good Potatoes are to be had at mid-summer farmers will find that agriculture is not quite hopeless, for one lesson they will learn—that he who leaves the time-worn rut may still make money.

How a Potato may be suitable for a large piece of ground, but unsuitable for a small piece by reason of its spreading haulm, we do not understand. If the haulm spread widely, the plants should be planted widely. If thirty shaws of Magnum Bonum yield as much or more than a hundred of Early Rose, both taking up the same ground, I do not see why the Magnum Bonum should be disqualified. Rather the opposite, for, supposing other things equal, a working man's dinner would be saved out of the seed required, while the less likelihood of disease spoiling the produce might secure a few more further on. Three Potatoes of Magnum Bonum will, on equal conditions, produce quite as much as twenty of Early Rose. Early Rose requires at least two eyes to the set, Magnums only one.

As to what kinds cottagers plant their plots with is of no great consequence. What farmers grow is of national importance. In some districts Scotch Champion has proved a mainstay. Here Magnum Bonum is better, as it yields twelve tons to the acre under the same treatment that only secures ten of the Champion. Moreover, Magnum Bonum produces a much more even sample, and is not so exhaustive. There are fewer chats by far, and the eyes are singularly shallow, so they are no cause of waste. The Champions are peculiarly hollow-eyed, so causing great loss in the kitchen. Nevertheless we do not condemn it, for it may in

some districts prove superior. Whether or not, we hope that in a year or two at most our large towns will be fully supplied with old Potatoes at midsummer, and even later; and if this paper should draw the attention of growers or dealers to the suitability of these Potatoes for such a purpose, and so be the means of saving money to the nation and securing a more abundant and more wholesome supply of Potatoes to the teeming multitudes of our town populations, we shall be very amply rewarded.—A SCOTCHMAN.

MIGNONETTE CULTURE.

THE value of Mignonette for winter use is very great, and it is of importance to have a succession of plants all the year round. To obtain a supply of flowers in winter, seed should be sown in July in the open ground or in seed pans, covering the seed about a quarter of an inch deep. By the middle of September the plants from this sowing should be potted and placed in a cold frame, care being taken to shade them from the sun for a few days after their removal. As the plants advance in growth they will require supporting with clean neat stakes.

The winter supply will not last until the plants in the open air commence flowering, therefore another sowing is required. This should be done in August, sowing in pots, the compost employed being loam mixed with a little leaf soil. When the young seedlings are of moderate size they should be thinned-out, leaving about a dozen in each pot, staking them as they advance in growth. A cool greenhouse will suit them well, placing them in the lightest position possible to produce strong growth and increase the odour of the flowers.

Where glass structures are not at command Mignonette can be grown in boxes placed in windows with a south aspect, giving the plants as much air as possible.—Z.

ON MAKING ENDS MEET—VINES AND PLANTS.

THE majority of gardeners have to struggle on, not always as successfully as they would like, with means for doing their work very inadequate to what is required of them. We have all to make the most of makeshifts, and be glad if we succeed by any means in our power, though always hoping that a time will come when we shall have appliances calculated to do us more credit and to benefit our employers as far as possible.

Though it may appear somewhat paradoxical to say so, the surest way of obtaining improvements in gardens when the owner is not so interested as his gardener, so long as a certain amount of produce is forthcoming, is to make the very most of the means at command and wait till a fitting time comes for stating the case fairly. I commenced with very inadequate means indeed to supply the wants of a noble family, and, though far from having things as I would like them to be, I have had very fair encouragement in the improvements which have been made to meet my wishes. This is stated merely as an instance of what others may expect who try to do their duty. I have still to do many things in unorthodox fashion, and do not expect to get everything to my liking. I well remember after I came here being asked if it would do the Vines very much harm to grow plants under them, and if it would not be possible to grow Mushrooms in an underground shed where they had been tried without any success. I promised to try. In the case of Mushrooms, after trying and altering the beds, we had good success; and in the vineries perhaps as valuable crops of flowers have been grown during the winter as the crop the Vines bore in summer. I have better appliances for flower-growing now, but the demand for flowers has increased along with the means for supplying them, and I have still to rely greatly on our fruit houses as plant structures in winter and spring.

It may be asked, What flowers can be grown in vineries and Peach houses in these seasons? Well, in Peach houses, which are best cool, I have valuable crops of Chrysanthemums, and there I also grow Heaths and Epacrises, Eupatoriums and Daphnes, Coronillas and Cytisuses, Cyclamens and Solanums, besides growing plants for flowering in summer. In vineries Camellias are flowered throughout the dullest months, so are Azaleas from November onwards. I keep an uninterrupted supply of Zonal Pelargonium trusses from October till spring, forced Roses, Show Pelargoniums, Heliotrope, Polyanthus Narcissus, and Callas; grow Lily of the Valley after flowering, and use the vineries very generally as forcing houses throughout the winter.

But some may inquire, How do the Vines and Peaches like such winter treatment? As I hinted, the Peaches are not subjected to heat, but the Vines are. Some of our vineries have for years never had a lower average temperature during winter than 55°.

One of the vineries this season has had a temperature of 50° to 65°. After several years' experience I do not think the Vines are at all the worse for having the winter rather warmer than is generally supposed to be good for them. It must be remembered, however, that all our Vines have a high temperature in August and September, in order to ripen the wood thoroughly and finish the fruit. The Vines rest until we wish them to commence growth in spring.

Though I do not think I would have voluntarily turned vineries into what are practically forcing houses during the winter season, yet there does not appear to be any reason why the Vines should not pass the winter as safely under such conditions as when they are kept perfectly cool. Provided they are not induced to commence a premature growth, and by securing hard well-ripened wood in autumn, it is difficult to see how any harm can accrue from subjecting them to a somewhat milder resting season than is usually provided. Vines for the production of early Grapes rest, or remain quiescent, throughout the summer months under very much more trying conditions than do those now under discussion; and at the period they have been used to commence growth in, they respond to the treatment given them at that time, and begin their season's growth. And it is so with these late Vines. They wait until their usual period for commencing growth arrives, and under the treatment given them at that time they start well. Anyone whose plant structures are not equal to the requirements of the establishment may safely turn late vineries into structures for producing such flowers as above mentioned. If managed judiciously there is no difficulty in growing Grapes for winter and flowers as well.—A NOR'-EASTER.

TROPÆOLUM SPECIOSUM.

As the discussion as to growing *Tropæolum speciosum* in England goes on in the Journal, perhaps it may be well to give our experience of it in the cottage garden here. Having seen the plant in its beauty in Perthshire we wished to grow it, and procured a few roots from a London nurseryman, who made the not very encouraging remark that we should not bloom them. They were planted in the coolest dampest place in our warm garden, in a Lily bed made of stronger soil than usual under a high oak fence which sheltered them from the sun. The first year I do not think they came up, but every succeeding year they have grown more strongly, both leaves and flowers becoming constantly larger, till this year they seemed thoroughly established—climbing up Lily stems and covering a large plant of *Garrya elliptica*, and growing up a *Periploca græca* trained on the fence. The effect was beautiful, and this year for the first time there was a quantity of the pretty fruit. I have seen the plant flowering well in a warm situation on Mr. Barnard Hankey's house at Cranleigh, and Mr. George Paul tells me that it grows vigorously in the garden at High Beech in a hedge. Acting on this hint I have planted some in our Cherry Plum hedge (which, by-the-by, is quite a success), and believe that it will do well. I believe that the great thing is to wait patiently and not to disturb it.

There have been several questions as to the best cure for American blight on Apple trees. We planted at Oakwood one hundred young Apple trees, and, owing probably to the ground being at first insufficiently drained, we had much American blight. My man keeps a box of Gishurst compound open and a hard painter's brush, and well lathers on any appearance of the pest. This at once disposes of it, and the dressing does good rather than otherwise to the tree.—GEORGE F. WILSON.

VEGETATION IN SIBERIA.—In Baron Nordenskjöld's admirable work "The Voyage of the Vega," occurs the following passage referring to the vegetation of Siberia. "On the slopes of the steep tundra bank in several of the tundra valleys there is an exceedingly rich vegetation, which already, only 100 kilometres south of Yefremo-Kamen, forms actual thickets of flowering plants, while the tundra itself is overgrown with an exceedingly scanty carpet, consisting more of mosses than of grasses. Salices of little height go as far north as Port Dickson (73° 30' N.L.), the dwarf Birch (*Betula nana*, L.) is met with, though only as a bush creeping along the ground, at Cape Schaitanskoj (72° 8' N.L.); and here in 1875, and on the ice-mixed soil of the tundra, we gathered ripe Cloudbberries. Very luxuriant Alders (*Alnus fruticosa*, Ledeb.) occur already at Mesenkin (71° 28' N.L.), and the Briochov Islands (70° to 71° N.L.) are in several places covered with rich and luxuriant thickets of bushes. But the limit of trees proper is considered to begin first at the great bend which the river makes in 69° 40' N.L., a little north of Dudino. Here the hills are covered with a sort of wood consisting of half-withered, grey, moss-grown Larches (*Larix sibirica*), which seldom reach a height of more than 7 to 10 metres, and which much less

deserve the name of trees than the luxuriant Alder bushes which grow nearly 2° farther north. But some few miles south of this place, and still far north of the Arctic Circle, the Pine forest becomes tall. Here begins a veritable forest, the greatest the earth has to show, extending with little interruption from the Ural to the neighbourhood of the Sea of Ochotsk, and from the fifty-eighth or fifty-ninth degree of latitude to far north of the Arctic Circle—that is to say, about one thousand kilometres from north to south, and perhaps four times as much from east to west. It is a primeval forest of enormous extent, nearly untouched by the axe of the cultivator, but at many places devastated by extensive forest fires. On the high eastern bank of the Yenisej the forest begins immediately at the river bank. It consists principally of Pines: the Cembra Pine (*Pinus Cembra*, L.), valued for its seeds, enormous Larches, the nearly awl-formed Siberian Pine (*Pinus sibirica*, Ledeb.), the Fir (*Pinus obovata*, Turcz.), and scattered trees of the common Pine (*Pinus sylvestris*, L.). Most of these already north of the Arctic Circle reach a colossal size, but in such a case are often here, far from all forestry, grey and half-dried up with age. Between the trees the ground is so covered with fallen branches and stems, only some of which are fresh, the others converted into a mass of wood-mould held together only by the bark, that there one willingly avoids going forward on an unbroken path. If that must be done the progress made is small, and there is constant danger of breaking one's bones in the labyrinth of stems. Nearly everywhere the fallen stems are covered, often concealed, by an exceedingly luxuriant bed of Mosses, while on the other hand Tree-Lichens, probably in consequence of the dry inland climate of Siberia, occur sparingly. The Pines, therefore, want the shaggy covering common in Sweden, and the bark of the Birches which are seen here and there among the Pines is distinguished by an uncommon blinding whiteness."

CHOICE IRIDS.

In the two preceding volumes of this Journal some of the most beautiful Irises were briefly described, and it is now intended to similarly bring into notice the most attractive of the numerous allies of that genus. There are several genera which contain species scarcely inferior to the Irises in beauty, the flowers possessing a brilliancy of colouring almost unequalled in the vegetable world. As striking examples of this we may especially note the Peacock Irises (*Vicusseuxia*), in which there are some very remarkable combinations of rich and varied hues. *Moræas*, *Tigridias*, and several others may be included in the same list, but while their flowers are beautiful they are of short duration, and the only way in which a continued display can be obtained is by growing as many distinct species as possible. This applies equally to plants grown in pots and those in borders; but there are some, such as the *Tigridias*, which appear better in masses, and therefore a larger number of one kind is preferable.

These Irids will never take a position among what are termed useful garden plants; but to impart diversity to a collection where the love for plants extends beyond those necessary to supply abundant flowers for indoor decoration or for brightening the conservatory, they will not only always be admired but also probably become more generally grown. They are especially suited for culture in a cool house, and where gardens are situated in damp or cold localities that is the only way in which the choicest can be satisfactorily grown. In warm positions with moderately light sandy but not dry soil many succeed well in borders, and there are a few genera that thrive in any ordinary garden soil provided there is not an excessive accumulation of water. As a rule, however, even in the best positions they require careful attention when outside and protection in winter. In such houses as those at Oakfield, Wimbledon, recently described in these pages, they would succeed well and add much to the interest of the collection, but where a cool pit or house can be provided they may be comparatively easily grown.

Several nurserymen who make a speciality of hardy and half-hardy herbaceous, bulbous, and other plants have good collections, but at Kew most of the best forms are well represented. The mode, too, in which these and other half-hardy plants are grown in the last-named establishment suits them admirably, and though the same means are not at the command of all it indicates an easy way of obtaining satisfactory results. A low span-roof house or pit with a path down the centre is divided by a partition into two compartments, one of which can be kept slightly warmer or closer to accommodate such plants as require it. The side beds, separated from the path by brick walls, are covered with fine einders, which forms a cool and moist base for the plants to be arranged upon. Whenever the weather is at all favourable the house is ventilated most abundantly, as the lights are moveable and can be lifted off if requisite. There the plants flower and are then transferred to the Cape house, which also contains the Heaths and the Mesembryanthemums, a similarly low temperature and liberal ventilation suiting all. By this system the plants

are grown under the best conditions, and a succession of attractions is maintained in what may be termed the show house. Indeed there are few months of the year when a visitor does not find some pretty or interesting plant flowering in the Cape house at Kew.

It is only intended in these notes to refer to the most attractive species, as many are simply of botanical interest, with small and dull-coloured flowers. There are plenty of the former, however, and we may select as the first to be discussed the genus

MORÆA.

At first sight most of the *Moræas* would be considered to be Irises, and to casual observation they present few distinguishing characters; but on examining them we at once find them distinguished from the true Irises by their bulb-like root, thus



Fig. 1.—*Moræa Sisyrinchium*.

approaching the bulbous Irises (*Xiphions*). On a further examination, however, it will be observed that the root of the *Moræas* is solid or corm-like, and not formed in layers, as it is in the *Xiphions*. This is the chief difference, but there are some other floral characters which also serve to distinguish them, such as the perianth segments being generally nearly equal, and some others of less importance. The cultural points given above apply to this genus. The species can be grown in pots or planted out, but the former is preferable, light soil being employed and providing good drainage. Large pots are not necessary; 60's or 48's suit them well, placing several bulbs in each. Supply water judiciously, but when growing or flowering they must not be allowed to become dry, and even in the resting period withholding water must not be carried to excess.

M. Sisyrinchium.—This is a beautiful species, a native of South Europe and the Mediterranean region, and has long been known as Spanish Nut, because it is said that in Spain the children eat

the roots as a nut, of which it is suggestive in form and brownish colour. It was known to the old writers Gerard and Parkinson, and has therefore been in cultivation in this country nearly three hundred years. The flowers are very handsome though fugitive, the larger perianth segments being bright deep blue marked with white and yellow in the centre, the other divisions of the perianth also being blue but of a lighter tint. The woodcut (fig. 1) portrays the chief floral characters, well showing the general form. The flowers are usually produced in spring, about May.

M. Tenoreana.—This also is a European species, but was not introduced to England until 1824. It is scarcely less beautiful than *M. Sisyrinchium*, though the flowers are smaller, but the colour is very rich. The divisions of the perianth are narrow, the upper half being deep blue, and the lower towards the centre yellow and white with a few dark spots. It flowers fully a month later than the preceding, and forms a welcome succession.

M. edulis.—One of Loddige's introductions from the Cape of Good Hope to England, but it is said to have been known in Holland for many years. It was originally found by Thunberg abundantly in the neighbourhood of Cape Town, chiefly in low positions and in sandy soil. The flowers vary in colour, but are mostly of pinkish hue marked with blue and white, the divisions of the perianth being neatly rounded. One very pleasing character the flowers possess—namely, a most agreeable though delicate fragrance. Fig. 2 faithfully represents a flower and leaves.

Three other species that deserve growing are *M. ramosa*, with comparatively large flowers, bright yellow with a dark blotch at the base of the petals; *M. ciliata*, with small bright red flowers, rounded petals, and a yellow centre blotch; and *M. papilionacea*, with bright orange-coloured fragrant flowers, which are produced a little later than *M. Sisyrinchium*. These with the preceding form a good half dozen, and fairly represent the genus.

With regard to the extent and geographical distribution of the genus *Moræa* as it is now constituted, it may be remarked that about thirty-five species are known, twenty-five of which are found at the Cape of Good Hope, thus forming the head quarters; nine are natives of tropical Africa, and one—viz., *M. Sisyrinchium*—ranges through South Europe, North Africa, and temperate Asia. Mr. J. B. Baker considers *M. Tenoreana* as a variety of the last-named species, and refers to it under the name *M. fugax*. A small proportion of the species are in general cultivation, and in few collections are more than half the total number represented. At Kew they have over a dozen forms.—L. CASTLE.

(To be continued.)

IS POTATO CULTURE PROFITABLE?

UNDER this heading a short paragraph appears in your last issue. "AN AMATEUR" asks, Why sell Potatoes at 4d. per stone? and concludes that the dealer who gives that price will not sell at less than double. Were he situated in this locality (South Yorkshire) he could at the present time buy good Potatoes at even less money, and would have to be satisfied with a much less profit than above quoted. During the past week one well-known agriculturist has sold the produce of ten acres of Champion and Regents (at a rough estimate they will average nearly 5 tons per acre) at 6s. per load of 18 stones, or £2 14s. 3d. per ton, the same to be delivered free at the railway station, which in this case is upwards of seven miles distant. They were grown on good limestone soil, were a first-class sample and of splendid quality. The dealer who bought them said they were the best sample he had bought this year, and he gave the highest price, as on the previous day he bought a thousand loads at 5s. 3d. per load. Taking the above figures into consideration, and the necessary outlay in labour, manure, &c., which under the most favourable conditions must be considerable, the margin for profit must be very small. Some growers take their Potatoes by road to market, a distance of fifteen miles, and are their own salesmen, and of course get the benefit of doing so, but the extra expense is considerable. Potatoes are extensively grown in this district, and this year the crops have been good with but very few diseased tubers. Until within the past two years the Scotch Regent was the favourite variety, but it has now to make room for Champions and Magnum Bonums owing to their disease-resisting qualities.—G. SUMMERS.

RICHARDIA ÆTHIOPICA.

I NOTICED recently a writer stated that to have the beautiful Lily of the Nile (*Richardia*) in bloom by Christmas it is necessary to grow them entirely in pots. I have grown *Richardias* for ten years or more, and have never had the plants remain in pots

through the summer. Until this year I have not required blooms of these until *Chrysanthemums* were over; but in the last week of October I found they would be wanted as quickly as possible, and on the 18th of November the first three spathes were cut, and we have continued cutting weekly ever since, and shall do so until after Easter, when the demand will cease.

The culture of the plants is very simple. After they have been started keep them growing healthily without check. As a rule they will finish growth by June, when the plants may be divided and planted out in the kitchen garden, and left there until required in autumn. When planted out they take some weeks' rest, and then the plants commence making fresh growth, and many of them will have spathes either showing or well forward at the



Fig. 2.—*Moræa edulis*.

time they are lifted. When lifted they must not be checked. If kept in a cool shed for a while and watered they will form fresh roots, and are then ready for bringing into flower at any time. A pan kept filled with liquid manure under each plant is a great help to them.—A. N. E.

SUCCESSFUL TREE TRANSPLANTING.—During the building operations at Earnock House, Hamilton, it was found necessary to cut down or endeavour to transplant a large specimen of Turkey Oak—a very handsome tree—measuring some 60 feet in height, the bole 8 feet from the ground being 6 feet in circumference. Owing to the beauty of the tree it was considered worth the trouble to attempt the transplanting. A site was selected some 30 feet from its former position, and carefully prepared for its reception. A large trench 7 feet from the bole of the tree was cut all round, care being taken to trace out and preserve the whole of the roots. This was no easy matter, more particularly as Oaks, as is well known, are often devoid of fibrous roots. However, a ball weighing 5 or 6 tons was kept together, and with the assistance of two jib cranes to raise it from its bed and a crab winch to draw it to its new home, it was safely

transplanted, and there seems every likelihood that it will take root and flourish.—(*Journal of Forestry*.)

SOME SEASONABLE NOTES.

SHELTER.—Recently we noticed an illustration of how much benefit a little shelter is. All day the air had been a degree or two below freezing point and in rather rapid motion. Wherever the wind struck, the ground was frozen; wherever it was protected from the current it was not. What drew our attention most was the fact that a breadth of 3 feet on the lee side of a thin Thorn hedge remains unfrozen. Still air, as is known, is a good non-conductor, and when air is still it is surprising how the ascending heat of the earth keeps out frost. Perpendicular shelter, however, only protects from lateral currents. Vertical currents, which descend from unknown heights, can only be guarded against by coverings, but the sheltering effect of a thin hedge teaches us that even flimsy material, such as nets, may break the current and save much by securing a still layer of non-conducting air.

ARABIS LUCIDA VARIEGATA.—This is one of the brightest among alpinists, but it is not often mentioned in lists of such. Even Mr. Dod does not mention it. True, it does not thrive in a warm soil nor yet in a warm climate, but under the shade of a boulder its green and gold foliage charms the eye even in the dullest winter months. In many northern districts it is employed as a carpet bedder with effect. Its flowers are white, small, and inconspicuous. It only grows an inch or two high, and is easily propagated. The smallest bits made into cuttings and inserted in sandy soil in October will certainly make fine plants by spring. Those who have a good stock should simply divide their plants at the same time. Many fail with it because they are in too great a hurry to raise a stock. Heat and dryness are its enemies. All it needs is coolness and moisture.

ARABIS ALBIDA is better known, but is not half so much grown as it should be. It is one of the hardiest plants in existence, and will thrive almost anywhere and under any conditions, which has caused many to treat it badly. It, too, is best propagated by cuttings in October. These, if placed in a cold frame or under a handlight, will be good plants to put out in April. On good soil these will give abundance of bloom, which will last for some weeks a year after. Even on poor soil it will continue spreading, but the bloom will not last so long as when it is generously treated. Clumps a yard across at the sides of shrubberies have a telling effect. The variegated form makes a good dwarf bedder, but to see it in proper form it must be propagated from cuttings in October and placed out in April in good soil. Lifting and replanting it in spring is the ordinary way, whereby it has been brought into disrepute.—S. H.



A SUSSEX correspondent writes to us as follows on **HARDY FLOWERS IN JANUARY**—"What an extraordinary season this is! Here in the garden we have in bloom Carnations, Calendulas, Crocuses, Omphalodes verna, Roses, Anemones, Primroses without number, Violets, Xeranthemum annuum, Erysimum Perofskianum, Christmas Rose, Helleborus abchasicus, Escallonia macrantha, and a host of other plants all in the open air. I am afraid we shall suffer later on."

— REFERRING to the **MILDNESS OF THE WEATHER**, a Yorkshire correspondent writes—"I do not know how the weather is in the south, here it is like spring. Carnations are spindling, Auriculas throwing up trusses, Roses pushing their growths; in fact everything is growing fast." In the south, we may inform our correspondent that the weather has been unusually fine for a long time, and since the opening of the year the days have been remarkable for their mildness. Many trees are swelling their buds, and vegetation is much too forward to be safe. The Wheat in some fields in Essex is, we are informed, 9 inches high, has a most luxuriant appearance, and is dangerously forward.

— WE are glad to learn that **MR. WOODHEAD**, Shibden

Head, Halifax, is recovering from his late dangerous illness, and we hope he will be sufficiently restored to visit the forthcoming Auricula exhibition in London, and show how well Auriculas can be grown in glazed pots. He will have, we are informed, nearly six thousand flowering plants this spring, and his seedlings are looked forward to with considerable interest. His best white-edged variety has, however, unfortunately just flowered, but the plant that was at one time in great jeopardy is now considered safe. Unless Mr. Woodhead's plants have deteriorated since we saw them they will rank amongst the best that have ever been staged at South Kensington.

— **MR. LORENZ** of Erfurt has sent us an admirably executed coloured plate of his new **GAILLARDIA PICTA LORENZIANA**, which has been previously figured and referred to in our columns. Assuming that the flowers are faithfully represented in the plate before us, this is not only the finest and most distinct Gaillardia we have seen, but is one of the most striking border flowers that has yet been introduced. Such examples, however, as those in question can only be produced by superior cultivation, and we shall be glad to see flowers of equal merit during the ensuing season.

— **MESSRS. J. VEITCH & SONS'** collection of **BOUVARDIAS AT CHELSEA** includes most of the leading varieties, and among them are the new and beautiful double white variety Alfred Neuner, and the yellow-tinted Bouvardia flava. The last-named is much admired by some visitors to the nurseries, especially by ladies, and it certainly is distinct without the dullness that marks some shades of yellow. It is of good habit and very floriferous. B. umbellata alba and carnea are both handsome varieties with wax-like flowers, having long tubes and broad lobes. The brilliantly coloured Hogarth, elegans, and Dazzler are very attractive, the last-named being particularly showy.

— IN the same nursery the hybrid **AMARYLLIS AUTUMN BEAUTY** was recently flowering well. This plant is a very remarkable instance of the combination of characters effected by hybridising, and deserves notice also for its quality of flowering at this season of the year. One of the scarlet-flowering Amaryllises was made the seed-bearing parent, being fertilised with pollen from A. reticulata; and the success of the cross was at once evident when the seeds germinated, as the leaves, though larger than the latter parent, have the distinguishing white central band. The flowers are of moderate size, resembling the pollen parent both in that respect, in colour and marking. It is decidedly attractive, and will no doubt receive the attention of cultivators when it is sent out.

— IT is to be regretted that the **EXHIBITION OF FRUIT AT THE ALEXANDRA PALACE**, which closes on Saturday next, was not better supported. The prizes were liberal, and much more competition might have been expected. Apples were, however, well shown, three very fine collections being staged. Mr. Lewis Killick, Langley, Maidstone, was deservedly awarded the premier prize for over one hundred dishes of handsome fruits, some especially fine. Blenheim Pippin, Cox's Orange Pippin, Reinette du Canada, Warner's King, Belle Dubois, Lord Derby, Loddington, Hollandbury, and Kentish Beauty were the most noticeable. Mr. Goodacre, The Gardens, Elvaston Castle, secured the second position with about sixty dishes of good even samples, not so large generally as Mr. Killick's, but very creditable and in excellent condition. Mr. J. Steward, Langford Park, Maldon, Essex, took the third position with thirty dishes. In the classes for a collection of fruit and for Grapes Mr. Goodacre was the only exhibitor, securing the first prize in each for good Pine Apples, Apples, Pears, Melons, and Black Alicante Grapes, the last named very well coloured.

— A PLANT which is much more valuable than is commonly supposed is *JUSTICIA CALYTRICHA*. When cut the inflorescence is most useful for vases, and it lasts in beauty a considerable time. The flowers are very numerous and of yellow colour; they do not individually last long, but open in succession. Not only is the corolla yellow, but also the calyx, which is formed with long slender lobes about equal to the corolla in length. These give a character to the inflorescence. In the Cambridge Botanic Garden this plant forms quite a useful and ornamental feature in the stove. There it grows in the soil beneath the stage and pipes, quite hiding the latter with luxuriant foliage. Hundreds of flower heads have been produced during several weeks, and almost always it may be found in bloom. It grows better as above situated than in pots. If pot culture is desired the chief consideration is to overcome so far as possible its naturally tall habit. To this end it should be cut back periodically, and to form a specimen several may be planted together in a pot. It is fond of moisture, and to produce the best result strong shoots must be grown for flowering. This is the *Justicia flavicoma* of Lindley, under which name it is sometimes known. It is a native of Brazil.

— WE have been requested to publish the following announcement—"The retirement of MR. THOMAS MOORE from the *Gardeners' Chronicle*, and, as we may reasonably suppose, from literary work in general, had so far become known before it was accomplished that a movement was made for its recognition. A meeting of his friends was called to consider the propriety of signalling the event by a handsome presentation and a formal expression of good wishes. The result was the formation of a Committee, and a resolve that the presentation should consist of a substantial service of plate, the remainder of the programme being left undecided for the present. It will be understood, we hope, that we heartily concur in the spirit of the promoters, for if ever an earnest worker for science and humanity deserved a tribute of 'public and personal regard,' Mr. Moore has the highest claims on our gratitude and sympathy. We learn that the subscription list has opened well with many entries of five guineas to one guinea, but lesser sums will be welcomed by the Committee, who desire above all things that the gardeners of Great Britain and the isles thereof should manifest their approbation of the proceeding. The Hon. Treasurer is William Paul, Esq., Waltham Cross, Herts; the Honorary Secretary is Shirley Hibberd, Esq., 15, Brownswood Park, London, N."

— FEW greenhouse plants are more indispensable for flowering in the month of December, and in the winter months generally, than is the yellow-flowered shrub *CORONILLA GLAUCA* from the south of Europe. In habit it is perfectly under control, and by pruning at different times may be had in flower over a long period. A freer-flowering plant could not be desired. Several hundred good specimens were cut for botanical purposes in the Cambridge Garden a short time since from a few plants. It is of course well known in the London market, but may not be grown in some gardens where it would be most useful.

— THE following additions have been made to the COMMITTEES OF THE ROYAL HORTICULTURAL SOCIETY—Scientific Committee: Professor J. Bayley Balfour, Drs. Michael Foster and Low, and Messrs. Anderson-Henry, J. G. Baker, R. D. Blackmore, Arthur Grote, R. J. Lynch, J. H. Mangles, and Thos. Moore. Fruit Committee: Messrs. W. Denning, Thos. Laxton, S. Lyon, A. Paul, and G. Paul. Floral Committee: Rev. H. Harpur Crewe (Chairman), and Messrs. C. Green, Shirley Hibberd, W. B. Kellock, and D. C. Lathbury.

— MR. J. C. SPYERS, writing in the last issue of the "*Gardener*," gives the following particulars concerning the TREATMENT

OF NEWLY IMPORTED ANGRÆCUMS—"At once cut away all dead and decaying parts, and lay the plants for the first few days in a very shady part of the intermediate house. Old basket lids or something of the kind should intervene between the moist shingle on the stages and the plants. After about a week the foliage may be cleaned and the plants hung up, roots uppermost, in a shady part of the East Indian house. They may then be dewed over with the syringe morning and evening. The moment the centre or youngest leaf begins to grow pot the plants in a mixture of crocks and charcoal, and afford a little more light. Water should be poured in amongst the roots and crocks every two or three days, and the foliage will be greatly helped by frequent spongings. As roots push give them sphagnum moss to run in. It should be pressed in firm; but 1 inch thick will be ample for the small-growing species, while strong sorts may take from 3 to 6 inches, according to the length of their stems."

— "SELDOM," says the *Journal of Forestry*, "has a season been so favourable for TREE-PLANTING as the autumn that has closed, and while farmers and others are complaining of the extraordinary nature of the seasons, the planter of trees has at least much cause for contentment. Growth was quickly made during the summer, and stopped early, so that most trees were in a state fit for transplanting at an unusually early period. Wise and energetic people at once perceived and took full advantage of this, and began their planting operations betimes. They are now reaping the benefit of being early in the field by seeing an extra large breadth of plantations laid down in the best possible condition, and the prospect of a late, cold, ungenial spring gives them very little concern. It is far otherwise with the dilatory man who has let the splendid season slip past while he has been only 'thinking' about planting. He has missed his best chance, and is now tormented with anxiety about the endurance of the winter and the probabilities of a late and bad spring, when his planting must be done under disadvantageous circumstances, and the work rushed through with reckless haste. Numerous and costly losses are the vexatious result of such a thoughtless system, and those who practise it in these days of better knowledge deserve to suffer for their want of energy and perception. Every intelligent planter knows that there are but few circumstances in which it is not better to plant in autumn than in spring, and only in those few exceptional cases is it excusable and preferable to delay planting till spring."

THE ARRANGEMENT OF CUT FLOWERS.

SIMPLICITY without tameness, fulness without crowding, warmth and richness of colour without gaudiness, lightness, elegance, and freedom without looseness or a ragged unfinished aspect, one or two prominent colours as the groundwork and key of the arrangement, and, lastly, an imperceptible uniformity and connection void of formality and stiffness—these are the most important fundamental points in the arrangement of cut flowers, which are not to be ignored with impunity, for while agreeing to the exercise in its fullest scope of individual taste, it is well to keep fanciful ideas within due bounds, and to refrain from eccentric attempts at novel arrangements that clash with the dictates of good taste. In order to be quite safe in a matter of such importance, let me earnestly advise students of this delightful branch of gardening to cultivate taste by making every arrangement a lesson, and to thoroughly grasp the cause of every success as well as every failure. Such efforts invariably lead to success; it may be, perhaps one ought to say must be, a success of degrees, for, as I have already explained, to be a master of this art one must possess natural gifts developed by culture, but which no culture can supply.

In dinner-table decoration simplicity of design is of much importance, those which are at all complicated or crowded seldom proving quite satisfactory. By way of example a description may be given of two tables arranged recently. The first, a large table, had five trophy cups along its centre, each one having three pyramids of handsome compact white flowers of Mrs. Rundle Chrysanthemum and Maidenhair Fern at its base. Between the

pyramids there was tall slender vases of scarlet Pelargonium, Selaginella, and grass; and outside this central arrangement were the dessert dishes intermingled with more tall vases of the dark rich flowers of Julie Lagravère Chrysanthemum, which light up so well, Lycopods, and grasses; all the tall vases being connected by a light chainwork of Selaginella caesia. From the chandelier there was a central globe of the large white flowers of Chrysanthemum Fair Maid of Guernsey, and outer globes of scarlet Pelargonium; Selaginella, Maidenhair Fern, and dried spikes of Briza minima being used in all the globes. The flowers were tastefully arranged; the colours blended well, and the effect was rich and striking, but yet it was not quite satisfactory. There was too much of it, so many vases were used, hence the failure; for that is the only safe term to apply to that which is not entirely a success.

The next night there was a very large fish globe upon the centre of the table, with another globe a size smaller above and below it. The middle globe was elevated 3 inches above the cloth by a block covered with crimson plush, and the others only 2 inches. Large Fern fronds were made to droop over the sides of the globes and rest upon the cloth, due care being taken to have them far enough apart to afford glimpses of the clear transparent water, the colours used in the globes being rich crimson, white, and pink. Outside the globes there was a line of tall slender vases of pink Pelargoniums and Maidenhair Fern, connected by a chain of Selaginella. The chandelier had an inner wreath of white Chrysanthemums and Maidenhair Fern, and an outer wreath of long branches of blossom and foliage of Passiflora princeps lightly intertwined in graceful loops. This design was simple, elegant, and a decided success.

In church decoration cut flowers are indispensable, except perhaps at Christmas, when berried Holly and other evergreen shrubs reign supreme. In the decoration of a church in November for its consecration Chrysanthemums played an important part. All the window sills were carpeted with moss. There were three east windows. The central one had an erect wooden cross 38 inches high, and it was dressed with the pure white flowers of Fair Maid of Guernsey and small Fern fronds, plenty of damp moss being bound about the flower stems. Each of the side windows had a monogram I. H. S. sketched and enlarged 27 inches high from an old copy of the Journal, and cut out of wood with a fret saw to stand erect; the I. and H. being of white flowers, and the S. of scarlet Pelargonium and Bouvardias. Two other chancel windows had a double triangle and a Maltese cross in a circle of scarlet Pelargoniums and white Chrysanthemums. Each of the other windows had a different variety of Chrysanthemum. The flowers were very fine, and they were laid singly along the front and around the sides of the window sills 3 or 4 inches apart, with a cluster of flowers in each corner, but none upon the middle of the sill, which was thus made to represent a green carpet with a coloured border. The font had a fringe of picked fronds of the dark green Fern Lastrea dilatata, which has kept wonderfully fresh this winter, around the basin, which was filled with large white Chrysanthemums and the pretty fronds of Lastrea recurva. Eight clumps of Violets and Maidenhair Fern, three bunches to a clump, with Chrysanthemums between the clumps, were arranged upon a carpet of moss around the base of the font; this answered very well. At Christmas the same font had a simple floral cross of white Marguerites and very small fronds of Lastrea recurva standing erect upon a carpet of moss laid upon a lid fitted into the top. It was the first time of using the Marguerites for such a purpose, and I was much pleased with the effect, which was certainly lighter and more elegant than could have been obtained had Camellias been used.

The plumes of Pampas Grass have been commended for church decoration, but I have not found them of much use, for the simple reason that they are so very effective. Group a few plumes together in any prominent position, and they will "kill" everything else. You cannot subdue them. They need not, however, be entirely discarded, and often serve to brighten many a dull corner into life and beauty. In the decoration of a chancel the choir pews were not treated in the usual manner, but were left bare of wreaths or evergreen of any kind. Boxes were made to stand along the bottom of the front pews, but only large enough to hold enough moist sand to keep plants and flowers from drooping prematurely. These were filled with an arrangement of Ferns, hold clusters of Chrysanthemums, and Pampas Grass, of which shoots were selected with foliage of moderate length and arranged in the sand in imitation of miniature plants, with just one plume kept low down among the gracefully drooping grass. The front of the boxes and surface of the sand were concealed with moss. The Ferns used were plants of various sizes of Lastrea recurva, always beautiful, but especially so at this season of the year, when its

lively green hue and elegant frondage stands out conspicuous amidst the bareness and decay of winter.—EDWARD LUCKHURST.

LILY OF THE VALLEY—HOME VERSUS FOREIGN CROWNS.

FROM notes in the gardening papers it would appear there are still people who consider it wonderful that home-grown Lily of the Valley can be forced as successfully as foreign-grown crowns. From experience with home-grown plants for several years past I much prefer those prepared by myself to the best foreign produce I have yet tried. This season the first flower spikes were cut in the middle of December from plants in pots which had been forced for several years back. All the forcing these plants had was simply placing them under the stage of a stove kept at a night temperature of 55° to 60°. The plants were covered and the soil kept moist, and when fairly growing were shifted on to the flow pipe which passes into a cooler compartment. Thence they were removed to the stages of the structure to finish. Imported roots would not grow under these conditions at this season. Another great point of the utmost importance to gardeners is this, that home-grown plants produce foliage as freely as flowers, though it takes a few days longer to develop it at this season. The great point is to keep the plants growing in a warm house after the flowers have been cut, to treat them liberally, and to place them out of doors in a sunny position during the summer. I do not find them succeed when planted out and again repotted, so keep them always in pots. The present is a good time to prepare plants for growing in pots. A sunny border should be selected, double-dug or trenched, and a dressing of 6 to 9 inches thick of good dung worked in, mostly in the top spit. Then go to a bed of the plants and lift masses of them, breaking them up into clumps containing six to nine crowns, and plant the clumps 9 inches apart, having the rows a foot apart; then cover 2 inches thick with decayed manure. If the summer be fine a crop of flowers will be obtained the next forcing season, when the plants should be lifted and placed in 7-inch pots. I use pure loam and bones alone for compost. The succeeding season these will produce magnificent spikes. I do not advise that these should be forced to come in sooner than the beginning of February.—R. P. B.

ORCHIDS IN MIDWINTER.

HAPPENING to go to Chelsea last week I made a very hurried visit to Mr. Bull's famous establishment, where there is always something to be seen that is worth going for. Nor was this an exception to the rule. One of those low long houses which seem so admirably adapted for the growth of Orchids, at any rate under his management, there was a magnificent collection of Odontoglossum crispum (or Alexandræ) in flower, and turning out of the foggy atmosphere in which London was enveloped, it was indeed a treat to see this mass of pure lovely blossom. Infinite was the variety; indeed no collection of florists' flowers could exhibit a more marked one—some of purest white, others spotted more or less profusely, but not two of them alike. Then there were some perfectly circular in form, others more or less angular, others in which the flowers were as closely packed together as possible, others in which they were widely separated; while here and there was one forming a most lovely wreath fitted to adorn the glossy hair of Beauty's queen. Altogether a scene of surpassing loveliness. Amongst them was the new and remarkable Ondotoglossum mirandum with flowers of an olive-brown colour, with most peculiar lineal markings in the centre of the sepals.

In another house was a very fine example of the remarkable Anthurium Andreanum, some of the spathes being quite as large as one's hand—i.e., about 6 inches in length by 5 wide. It is a very grand plant; and although I question if it will be as floriferous as the older form, Schertzerianum, yet it will be quite as much appreciated. The persistence of the spathes is remarkable, some lasting for three months.

There were, of course, as always here, many other plants—a number, for instance, of the pretty little pure white Masdevallia tovarensis, Lycastes, Cattleyas, &c., but these two groups were what struck me as being most enjoyable at this season.—D., Deal.

BOTTLING GRAPES.—Some late Grapes, Black Alicante for instance, have the bunch so close to the old wood that, no matter how closely the young wood may be cut in, there is often not enough wood to insert into the neck of the bottle and allow of the bunch hanging clear. In such cases the wood above the bunch may be inserted instead, and it will be found to answer equally well, as we have proved. All fresh cuts should be dressed with Thomson's

styptic or shellac varnish, which will make sure of no loss occurring by evaporation through that channel.—S.

BEGONIA SEMPERFLORENS GRANDIFLORA.

BEGONIA SEMPERFLORENS has long been known and valued for its usefulness as a decorative plant. It is of sturdy growth, with bright green shining leaves, and produces stems about 9 inches high surmounted with compact trusses of silvery white flowers.

By constantly producing fresh growths from the root flowers are produced over a long period, but the plants are the most attractive during autumn and winter. They are increased by cuttings, growths being selected that have not produced flowers, as the tops of those which have flowered seldom or never form good plants.

The variety represented on fig. 3 is a striking improvement on the species, the plant being altogether more vigorous, attaining twice the height, with proportionate strength, producing branches



Fig. 3.—BEGONIA SEMPERFLORENS GRANDIFLORA.

freely, and large heads of fine flowers. Plants are, moreover, raised from seed sown in the spring, fine-flowering plants being produced in the autumn. As Mr. Abbey has so fully described this Begonia on page 423, November 10th, 1881, and as it was also referred to with great approval on page 354, October 20th, we will only add that the stock is in the hands of Mr. Iggulden, Marston Gardens, Frome; and the plants there, treated as annuals, have been admired by all visitors. This Begonia is without doubt a great acquisition, and will form a good companion plant to the useful *B. Knowsleyana*, represented on page 565 of our last volume.

PRESERVING ROWAN BERRIES.—It is said that Rowan berries may be kept fresh for winter decorations by being packed in salt in jars or wide-mouthed bottles. We have never tried that method,

as we find that they keep fresh and plump when bottled as Grapes are, kept in a cool moist shed where frost cannot reach them.—S.

AN AMATEUR'S HOLIDAY.

(Continued from page 579.)

"PAUL of Paisley's Pinks and Pansies" is an alliteration with which I have been familiar for many years. The late accomplished florist, Mr. William Paul, who rendered that combination famous is no longer to be met at our shows, but his productions are known far and wide, and attract much attention wherever they are properly exhibited. His son, Mr. J. G. Paul, now head of Crossflat and Greenlaw Nurseries, has entered with spirit into the field which his father made so notably his own.

The florists' Pink has been enthusiastically cultivated in the district for the last sixty years. I have heard that in America it is still called "the double or Paisley Pink." It has in Mr. Paul's hands reached such a state of excellence that it would seem difficult on such a field to develop striking improvements or greater attractions. The numerous and extensive beds, the planting of which was just finished when I called, evinced a determination to sustain the fame of the firm as cultivators and exhibitors of this favourite flower. When it is stated that from fifteen thousand to twenty thousand Pinks are annually sent out from Crossflat, and three thousand grown for stock, an idea will be had of the demand existing for them.

Growers of Pansies know how much they are indebted to this house for leading varieties. Of Show and Fancy sorts thirty thousand are there propagated annually, three thousand of the finest in commerce are grown for stock and seed, and novelties are yearly selected from about fifteen thousand seedlings. The last are proved for two years before being offered.

This flower, which is such a favourite in Scotland, has this season, as too many so well know, been nearly extirpated in some quarters by what I first heard attributed to the ravages of a maggot, and afterwards to some sort of canker. At the Edinburgh Show, an enthusiastic Pansy-grower from the south of Scotland lamented in my hearing that his large stock had, despite his utmost efforts, been nearly all destroyed. "But," he added, "I have already made a good fresh start." Two or three who suffered losses have told me that they saw no trace of vermin further than can often be noticed where decay is progressing. Mr. Paul strongly advocates early planting when done in spring. He has observed that if this be delayed till the sun gains strength, and the plants before they are established receive a shower followed closely by bright sunshine, the tender fibres are "scalded" and the plants die. He adduces the fact that where Pansies were placed out even as early as March, although they were exposed to much frost, they afterwards grew freely and continued in health throughout the season. In considering this we remember that in May we had almost the only hot weather we have had this year in Scotland.

Carnations and Picotees of the best sorts, Dahlias, Pentstemons, and Phloxes, are largely grown in Crossflats. I also observed an extensive assortment of herbaceous and alpine plants, Iris germanica, &c., and in a collection of Alpine Auriculas some showing flower seemed of high merit. I would not omit a very large and attractive bed of Auricula-eyed Sweet William of high excellence, to which I know Mr. Paul has for years been devoting attention.

From Paisley I started for Rothesay by the shortest route, thus economising time, although thereby missing on this occasion much of the beautiful scenery of the Clyde. Rothesay is well known to enjoy a very mild climate. I well remember being struck long ago by the Hydrangeas and Fuchsias that attain such dimensions there. On arriving I found a car just starting for Mount Stewart, the possession of the Marquis of Bute. It was one of the few lovely days we had this autumn in Scotland, and the walk through the grand woods of Mount Stewart was delightful. The stillness that prevailed elsewhere was broken by the harsh clank of machinery and the din consequent on the erection of a new mansion. I cannot say that I admired the heavy style of the large structure, nor the dull look of the red-coloured stone which is being used. The quantity of white marble which is to be employed in the interior will raise the whole cost to an almost fabulous amount. Turkeys were to be seen in the woods in considerable numbers, evidently free from the usual surveillance and care. Many visitors to Bute are not aware that in the Mount Stewart policies the uncommon sight can be obtained of beavers and kangaroos that have been introduced, and are evidently thriving well there. I saw a large number of the latter in an enclosed space adjoining the house. The beavers are further to the west. I hastened back to Rothesay with another object in view.

Mr. Dobbie of Rothesay has a well-deserved fame for his strains of several vegetables and florists' flowers, and I can testify, both from my own experience and that of others, to their excellence. I fortunately found Mr. Dobbie at home and spent half an hour in the ground attached to his warehouse in the town. I had previously been told by a friend who had called some time before, that I should be disappointed by the limited extent of the place. But my informant had failed to learn that this is but one out of upwards of a dozen such held by Mr. Dobbie throughout Bute and at Renfrew. This distribution of his grounds, while doubtless entailing considerable inconvenience, secures the purity of his various seeds. Here were in considerable numbers Show and Fancy Pansies, French and African Marigolds, Antirrhinums and Quilled Asters of first-rate quality. All of these

Mr. Dobbie has long made specialities. A collection of Phloxes and a bed of Auricula-eyed Sweet William were blooming well; some of the latter, of dwarf habit, with trusses of at least the ordinary size, had the pips of beautiful form and colour. Mr. Dobbie showed me with considerable satisfaction two rows of his famous Parsley. I certainly never saw better. The plants were wide apart, and the dwarf habit with the closeness and fineness of the foliage made them, even when looked into closely, seem adapted for table decoration rather than ordinary use. I returned to Glasgow satisfied that another day had been pleasantly and profitably spent.—A NORTHERN AMATEUR.

(To be continued.)

THE CHRYSANTHEMUM.

(Continued from page 584.)

Dressing the Flowers.—Various opinions will always exist on the propriety of this practice. At the present time it would be useless for any exhibitor to stage a collection of undressed blooms against others of equal size and substance that were dressed. Nearly all societies allow flowers to be dressed, which consists, in the case of an incurved flower, of merely drawing out with a pair of tweezers all short, curled, and irregular florets from the centre of the flower, or in any part of the flower that they can be found. The centre of most flowers will be found shorter than the outsides, and by pulling out the short florets a more even outline is produced, the remaining florets are regulated and the blooms placed in hollow wooden cups, in which position they are tightly fastened. One point may here be advanced in favour of dressing, that the more a flower is dressed the smaller the bloom is made; therefore the more substance the flowers contain the better chance the exhibitor has in gaining the premier position, hence the success of the Liverpool growers over the growers in the neighbourhood of London. The incurved flowers of the former are always of better build and contain more substance than the southern growers appear to be able to obtain.

Selection of Varieties.—The following lists comprise the best varieties in cultivation. Commencing with Section I., incurved flowers or flowers nearly always naturally incurved, the selections are made with a view that small growers may take the first twelve or twenty-four, and so on. Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny, Barbara, Empress of India, Golden Empress of India, Prince Alfred, Prince of Wales, John Salter, Mr. Bunn, Princess Teck, White Beverley, Golden Beverley, Hero of Stoke Newington, Princess of Wales, Lady Hardinge, Cherub, Novelty, Inner Temple or Refulgence—for they are undoubtedly one and the same variety, Refulgence being in my opinion the proper name—Lord Derby, Isabella Bott, Mr. Brunlees, Aurea Multiflora, Beethoven, Venus, White Venus, Mrs. Shipman, Beauty, Jardin des Plantes, Bronze Jardin des Plantes, Mrs. Heale, Lady Slade, Eve, Sir Stafford Carey, Queen of England, Golden Queen of England, White Globe, Miss Mary Morgan, Mr. Corbay, Duchess of Wellington, Bella Donna, Lady Talfourd, Blonde Beauty, Golden Eagle, Emily Dale, Golden Dr. Brock, Rev. J. Dix, Antonelli, Abbé Passaglia, and Mrs. Halliburton. In choosing selections for specimen-growing great numbers of the above will be found suitable, but particularly suitable are Mrs. G. Rundle, Mrs. Dixon, Mr. G. Glenny, Mrs. Brunlees, Faust, Guernsey Nugget, Prince of Wales, John Salter, Venus, White Venus, Lady Hardinge, Gloria Mundi, and Lord Derby.

Section II.—Flowers with florets which naturally reflex. The whole of these are very suitable for specimens, and are handsome and attractive when well trained, but in a good judge's estimation they would not carry the same weight as equally as well developed incurved flowers. The best reflexed varieties are Annie Salter, Dr. Sharp, Chevalier Domage, Felicity, Christine, Golden Christine, Cloth of Gold, Beauté du Nord, King of the Crimsens, Mrs. Forsyth, Mount Etna, Julia Lagravère, Orange Annie Salter, Ariadne, Attraction, Prince Albert, Garibaldi, Progne and Prometheus.

Section III.—Japanese varieties.—Here we will name fifty varieties as in the incurved section, taking the best known first in consideration with size.—Elaine, James Salter, Fair Maid of Guernsey, Fulgore, Gloire de Toulouse, Cry Kang, Bouquet Fait, M. Ardene, Peter the Great, Baronne de Prailly, Criterion, Madame Berthé, Rendatler, Fulton, Madame Lemoine, Monsieur Lemoine, Triomphe du Nord, Meg Merrilees, Red Dragon, La Nympe, Bronze Dragon, Arlequin (Lemoine), Comtesse de Beauregard, Grandiflora, Sarnia, Garnet, La Nympe, Nuit d'Hiver, Ethel, Jane Salter, Dr. Masters, Père Delaux, M. Delaux, Bismarck, Mdlle. Moulise, The Daimio, The Sultan, M. Crousse, Album Plenum, Arlequin (Delaux), Fleur Parfait, Rosa Bonheur, Rivière, L'Île de Plaisir, Hiver Fleur, Triomphe du Chatelet, Dr. Audiguier, Soleil Levant, Ne

Plus Ultra, Apollo, and Striatum, a variegated form of *Roseum pictum*, and very striking when true. There are many others omitted, such as *Luteum Striatum*, *Fanny Bouchardet*, *La Frisure*, *Nuit d'Automne*, and *Tendresse*, which are all good, but not so well known as many I have named in the fifty. Messrs. Veitch and Sons and other firms have several good varieties to introduce this forthcoming season, so that presently we may have a collection of seventy-two varieties as with exhibiting Roses, and many of those varieties named in this collection have been introduced within the last few years; whilst *Wizard*, *To Kio*, *Abdel Kader*, and other small-sized but beautiful dark flowers are now quite surpassed.

Section IV.—Large Anemone-flowered varieties.—*Fleur de Marie*, *Gluck*, *Lady Margaret*, *George Sand*, *Mrs. Pethers*, *Prince of Anemones*, *Acquisition*, *King of Anemones*, *Sunflower*, *Louis Bonamy*, *Empress*, *Madame Godereau*, *Bijon*, *Margaret of Norway*, *Queen Margaret*, *Princess Louise*, *Miss Margaret*, and *Princess Marguerite*.

Section V.—Small Anemone-flowered or Anemone Pompons.—*Antonius*, *Firefly*, *Marie Stuart*, *Miss Nightingale*, *Zobeide*, *Perle*, *Calliope*, *Dick Turpin*, *Mr. Astie*, *Sidonia*, *Jean Hatchette*, *Madame Chalonge*, *Regulus*, *Reine des Anemones*, *Rose Margaret*, *Mrs. Wynes*, *Astarte*, and *Astrea*.

Section VI.—Pompons.—*Mdlle. Marthe*, *Model of Perfection*, *Nelly*, *Rosinante*, *Bob*, *St. Thais*, *Salamon*, *Andromeda*, *Aurore Borcale*, *Lilac Cedo Nulli*, *Yellow Cedo Nulli*, *St. Michael*, *James Forsyth*, *Anna de Belocca*, *Fanny*, *Mustapha*, *Mrs. Hutt*, *La Fiancé*, and *Golden Madame Marthe*.

To the above may be added the following early-flowering varieties which are suitable for borders—*Adrastis*, *Cassy*, *Chromatella*, *Delphine Caboche*, *Fred Pélé*, *Golden Button*, *Golden Madame Domage*, *Hendersoni*, *Illustration*, *Jardin des Plantes*, *Madame Pecaul*, *Nanum*, *Précocité*, *Souvenir d'un Ami*, and *Madame Desgrange*.—J. W. MOORMAN.

NEW CHAPTER ON OLD PLANTS.

AMONG the beautifully illustrated horticultural periodicals of fifty years or so ago, Maund's "The Botanist" is worth a perusal. The plates were engraved on copper and were eventually coloured by hand. Modern demands necessitate economy of time and labour, and in the race after "much work for little money," the old system of hand-coloured plates seems doomed. With the cessation of the "Floral Magazine," the "Botanical Magazine," originated nearly a century ago by Dr. Curtis, is now nearly the only botanical periodical which produces lithographic plates coloured by hand. The hand-colouring plan, if tedious, slow, and expensive, had its own peculiar advantages, and the best examples of hand-coloured plates will bear comparison with anything the chromo-lithographer can produce so far as artistic excellence and finish is concerned. The *Luculia* plate in "The Botanist" (t. 40), is a fair example of what is meant. Bateman's works on Orchids contain fine plates produced in this way, as also do Redoute's "Liliacées" and Andrew's work on Cape Heaths. Our main object, however, in now alluding to "The Botanist" is to draw attention to a few of the plants therein delineated and described, and to ask if they be lost to cultivation or whether change of name is the main cause of their having become unfamiliar. After a good or interesting plant once becomes fairly well distributed it is a rare occurrence for it to be entirely lost. I seldom visit an old country garden without discovering some rare old plant apparently quite "at home," and generally the owner of it is quite unaware of its being in any way a rarity. It has often occurred to me that if some enterprising nurseryman, instead of sending all his collectors abroad, would employ a good man to search through our gardens at home, many a good and rare plant now neglected or extremely local in its distribution would be rescued and found worthy of being sent out with a good character. Many valuable hints and practical suggestions are obtained by carefully turning over old illustrated periodicals during the odd moments of leisure one now and then has to spare in a library. For example, I always thought of *Nelumbium luteum* as a recent introduction that had not as yet bloomed under cultivation in England, when, on turning over the plates in "The Botanist," I find that it was actually introduced half a century or more ago, and that it flowered in a stove at Bristol long ere I was born. This is a lesson for all of us. To rush forward quickly without a thought of the past is not all gain. No doubt as cultivators we sometimes unconsciously enact the fable of the "Dog and the Shadow" by grasping at "new plants" too eagerly, and by letting go our grasp of the good old ones we previously had. I shall be very interested to hear if any of the old plants here alluded to as being illustrated in "The Botanist" are now in

cultivation in this country, and I am quite sure that some of the many readers of the Journal will be both able and willing to tell me of them.

Enkianthus reticulatus (t. 1).—As a cool-house shrub this plant, never very common, and now, I fear, very rare, deserves some notice. The plant resembles *Arbutus* or *Kalmia* in growth and leafage, its clusters of pearly white bell-shaped flowers being produced along with the young growth. In shape the blossoms are Lily of the Valley-like, but each bell is fully half an inch in diameter, ten to twenty being produced in a cluster. China.

Aristolochia trifida (t. 3).—A slender twining species, bearing trilobate leaves and solitary axillary flowers, the tube being of the characteristic syphon-like shape, and the principal lobe of the three into which it is divided at the mouth is of a cordate outline, nearly 2 inches across, and exceeding that in length, tapering to a tail-like point, which forms a caudate appendage fully a foot long. The colour of the expanded heart-shape lobe is dark purple, the whole flower being very effective.

Tecoma australis (t. 8).—A climbing species from New South Wales, with trifoliate leafage and axillary racemes of white campanulate flowers blotched with rosy purple inside. The individual flowers are shown an inch long, tapering Pentstemon-like to a five-lobed limb, which is half an inch across.

Anemone vitifolia (t. 9).—A good figure of the true Himalayan plant originally introduced to England from India by Lady Amherst by means of seeds in 1829. Flowers snow white, quite distinct from *A. japonica alba*, or "Honorine Jobert," and scarcely hardy without some slight protection. Now again cultivated.

Nelumbium luteum (t. 13).—A lovely yellow-flowered form of *N. speciosum*, or "Sacred Lotus," found wild in New Jersey, Florida, and Louisiana States of North America. Drawing made from a specimen "which flowered splendidly in September, 1839, in the stove of Mr. Miller of Durdham Down Nursery, near Bristol." Cultivated at Kew and Oxford.

Ceanothus collinus (t. 15).—A slender-growing species, introduced by the unfortunate collector Douglas in 1826-7, from North America. The branch figured has oblong dark green leaves little over an inch in length, and slender axillary panicles of pure white flowers, very small individually, but their general effect is that of the finest of silvery flagree work, or the most delicate of lace. It is hardy, and flowers in May.

Dianthus ferrugineus (t. 21).—A most graceful plant with a Carnation-like habit, but bearing clusters of three to five flowers on the apex of a slender stem 15 to 18 inches high. The individual flowers are single, nearly an inch in diameter, each petal wedge-shaped with toothed margins, and their colour is a soft greenish yellow quite distinct from that of any *Dianthus* known to me. Native of Italy, perfectly hardy.

Rhexia Mariana (t. 27).—A correct figure, showing the inferiority of this plant for garden uses as compared with *R. virginica*.

Calochortus venustus (t. 29).—A good figure, by Mrs. Withers, of a lovely plant. It is now in cultivation.

Gilia coronopifolia (t. 32).—A slender-growing plant with slender grass-like trilobate leaves, and clusters of bright red flowers, reminding one of those of some *Phloxes*. It is hardy, but worth frame culture. Introduced by Douglas from North-western America.

Ribes speciosum (t. 37).—A excellent figure of the red Fuchsia-flowered *Ribes* of old Scotch and English gardens. It is now grown, but rarely as compared with its great merits, as a wall shrub.

Luculia gratissima (t. 40).—A beautiful plate by Mrs. Withers. It is most delicate and exact in its life-like variations of colour and shade, and may be taken as a type of the excellence of hand-coloured plates when well done. Now in cultivation.

Philibertia gracilis (t. 45).—This is "Tweedie's green-flowering *Asclepias* from St. Kathrens;" and Mr. N. Niven of the Glasnevin Botanical Gardens, having raised plants from Tweedie's seeds collected near Buenos Ayres, was able to supply the specimen figured. It is said to root readily from cuttings, and it is thought to be hardy enough to succeed on a wall in the open air during summer. It is a slender twining plant, having oblong leaves of taper shape cordate at the base. From the axils the flowers are produced in clusters on slender stalks. The individual flower is pendant and bell-shaped, an inch in diameter, quite Hoya-like in appearance, of a soft yellow colour densely dotted with red inside. It is so pretty as to make us wish for its reintroduction supposing that it is really lost.

Mimulus roseo-cardinalis (t. 48).—A far finer plant than the old *M. cardinalis* figured t. 2. It is a hybrid between *M. roseus* and *M. cardinalis*, the former being the seed parent. It was raised by Mr. Hodson in the Botanical Garden of Bury St. Edmunds. "Many individuals resulted from this cross, which all resembled each other, and flowered for the first time during 1837."

Mr. Wolley Dod sent me flowers of a variety of *Mimulus* in 1881, said to be a form of *M. cardinalis*, but no doubt of a cross-bred plant of this hybrid race. At any rate it would be interesting to hear if anyone still has plants of this fine hybrid in cultivation. The flowers are fully twice as large as those of the typical *M. cardinalis*; the lobes of the limb do not reflex so much, thus giving the flowers a better shape, and the colour is a fine deep rosy red approaching to crimson, having a few dark spots on the yellowish throat of the flower. The erect habit is that of *M. cardinalis*.—DUBLINENSIS.

HARDY ROSE CULTURE.

AN animated discussion, which extended over three sittings, has taken place in the Massachusetts Horticultural Society, and as it may have a certain amount of interest to the cultivators of the Rose in this country we give extracts from the Transactions of the Society for the past year. The discussion was opened by the following paper, which was read by Mr. William H. Spooner, Chairman of the Committee on Plants and Flowers:—

In looking at a subject it is generally supposed that, to attain even a moderate measure of success in the Rose garden, all advantages of soil, scientific appliances, &c., are essential, but the amateur will find very satisfactory results even when these conditions are not carried to great perfection. The soil of my garden is not particularly adapted for the growth of Roses, being light loam with a gravelly subsoil, yet from this apparently uncongenial source I succeed in growing many very good Roses. I am not an advocate of the deep trenching or subsoiling system in the preparation of the ground, considering it entirely unnecessary.

My system of planting was very simple at the outset, the land being already in a good state of cultivation. First, preparing myself with a sufficient heap of well-rotted horse manure, the space assigned for the plants was covered with a portion of the compost, spread broadcast, and then thoroughly ploughed in. I may mention here that I have at other times made use of hen manure mixed with about one-third soil, and consider it a good fertiliser for the Rose. The ground was then laid out in rows 3 feet apart, and the same distance between the plants; the holes for their reception were prepared by throwing out the soil to the depth of one spade from each, and then throwing in two or three forkfuls of manure, thoroughly incorporating it with the soil to the depth of the spade, when all was ready for the plants.

My plants are all the so-called dwarfs, worked low upon the Manetti stock, which I prefer to the seedling Briar, as it seems better adapted to my light soil. I judge the latter stock may be better suited to a stronger or clayey soil; at any rate, all the plants I had worked upon it have died. My plants were imported, and not received until about the 10th of December, when the ground was closed, so that I was obliged to keep them in snug winter quarters, bedding them carefully into a frame, protecting them very closely with leaves, and covering the frame with boards. They came out in splendid condition in the spring, and were planted with hardly an exception to successful growth, which result has led me to prefer the spring for planting in our uncertain climate, and I have continued to make small experiments of the same kind yearly since my first venture. Having cut back the plant to two or three buds, the stock should be planted with the collar about 2 inches under the surface, and the soil pressed very firmly about it. Through the summer I apply guano to the surface occasionally—a handful or two to each plant, sometimes in a dry state, and sometimes in water. I use frequently, in summer, a top-dressing of brewers' spent hops strewn broadcast, not digging it in; it helps to keep down weeds, and has many advantages.

The Rose, in a healthful growing state, is a great absorber of water, and the free use of the hose morning and evening has been my most reliable assistant in promoting its health and in freeing the plants from insects. Every fluttering leaf of the plants seems to rejoice as the cool water showers down upon it, and the clean fresh foliage greatly enhances the beauty of the blossoms which it surrounds. But insects are ready to invade every domain of horticulture, and are especially destructive to the perfection of the queen of flowers; some of them may be overcome, but as regards the Rose bug or Rose beetle I am in despair. The only remedy for this persistent plague that I have found has been the continuous application of the thumb and forefinger, and that with some severity.

It may be urged by some that the budded Rose has entailed upon it the disadvantage of suckers, and endless care to prevent them; but actual experience proves this to be very slight. It is presumed that a lover of the Rose is with his pets as often as possible, and the persistent thieves are easily detected and quickly destroyed. I cannot agree with those who claim that the maiden

bloom is the best effort with the budded Rose, as I am now growing plants on the Manetti stock which have been out eight years, and are producing as fine blooms as ever. The amateur wants results in the shortest time, and therefore must take the budded plant; if sunk deeply enough it soon becomes fixed on its own roots.

There is evidently a great difference in the constitution of hardy Hybrid Roses, as has been proved by success or failure under the varying influences of climate, soil, or stock; and as some results of my individual experience may prove suggestive, I append a list of a few which have been successful under my system of culture.

Abel Carrière.—Moderately vigorous; hardy; beautiful. Alfred Colomb.—This superb Rose is quite hardy and vigorous; its brilliant crimson flowers are unrivalled. Beauty of Waltham. Bessie Johnson. Charles Lefebvre.—A very strong and hardy Rose; flower large, and beautifully formed. Comtesse d'Oxford.—Hardy, vigorous, with fine large flowers. Coquette des Blanches.—A white Rose, and a truly perpetual bloomer until late in the autumn; a remarkably vigorous grower, and has proved hardy with me until last winter, when it was killed to the ground. Dr. Andry.—Hardy, vigorous, and a free bloomer. Duke of Edinburgh.—One of the strongest and most hardy. Dupuy Jamain. Eliza Boëlle.—Moderately vigorous; hardy, with a very delicate white bloom, shading to flesh colour. Emily Laxton.—Vigorous; of a climbing tendency; hardy, and very desirable. Fisher Holmes. Jean Goujon. John Hopper.—An old favourite; hardy, and a very fine bloomer. Jules Margottin.—Of vigorous habit; very hardy, and still one of the best. Lord Clyde.—A remarkably strong grower; hardy, and a very good Rose. Mabel Morrison. Marie Baumann.—One of the very best; moderately vigorous, quite hardy, with large and perfect flowers. Miss Hassard.—Vigorous, hardy; delicate flesh colour, very sweet, and a free bloomer. Mme. Boll.—Perfectly hardy and vigorous; a free bloomer, and early; flower not the most perfect in form or colour. Mme. Gabriel Luizet.—Vigorous; hardy; a free bloomer, and I think may prove one of the best. Mme. Georges Schwartz. Mme. Rivers.—A fine Rose; moderately vigorous and hardy. Mme. Scipion Cochet. Mme. Victor Verdier. Mme. Vidot.—Moderately vigorous; hardy; flower beautiful, and perfect in form. Mons. Boncenne.—A plant of good habit, very hardy and vigorous; the best of its class with me. Paul Neron.—Vigorous and hardy. Pierre Notting.—Very hardy; of good habit, and a strong grower, but, alas! how seldom do we find a fully developed and perfect flower; a bright sun apparently scorches the petals in the bud. Princess Louise Victoria. Senateur Vaisse. Sir Garnet Wolseley.—A thick bushy plant, rather short-jointed, moderately vigorous and hardy; its large vermilion flowers and profuse bloom are very attractive. Souvenir de Charles Montault. Thomas Mills.—Very hardy; a well-formed plant, of great vigour of growth; a very prolific bloomer; flowers very large; one of the best with me. Triomphe de Caen. Victor Verdier.—Always good and reliable.

I will now name a few varieties that have not proved hardy, or have been weak in growth, and less satisfactory in general results in my experience.

Cranston's Crimson Bedder.—This seems hardy enough, but is a very poor grower. La France.—Almost invariably killed. Louis Van Houtte.—Almost always killed; I only saved it one year. Mlle. Bonnaire.—Very beautiful and free in flower, but a poor grower. Mlle. Eugénie Verdier.—A weak grower, although a beautiful Rose. Mme. La Baronne de Rothschild.—Usually killed in winter nearly to the ground, and is never a vigorous grower. Mme. Lacharme.—Very tender. Prince Camille de Rohan.—Is not very hardy. I know this is not the general experience, but I have lost all my plants. Mlle. Marie Rady, Vicomte Vigier, André Dunand, and Capitaine Christy have proved tender.

THE MOSS ROSE.—Turning now to the fairest of the Rose family, we are reminded of the poetic allegory which accounts for its added beauty by supposing an angel to have found repose beneath its branches, and to have wished to bestow some gift in recompense, but to have been scarcely able to devise any addition to its charms:

"The angel paused in silent thought:—
What grace was there the flower had not?
'Twas but a moment. O'er the Rose
A veil of moss the angel throws;
And, robed in Nature's simplest weed,
Could there a flower that Rose exceed?"

I must confess to a great love for this fascinating class, partly for the reason that my light well-enriched soil, with its natural subsoil drain of gravel, tends to bring it to full perfection, and partly because the delicate fragrance of the foliage is peculiar and unique. The ground for Moss Roses should be prepared in the

same way as for the hardy Perpetuals, with a larger application of manure; and I also apply a more liberal annual summer dressing during the blooming season. I have always found the Moss Rose more difficult to successfully transplant than any other, and it starts very slowly on its own roots.

All my Moss Roses are worked upon the Manetti stock except the Common; these I prefer on their own roots. The varieties that have proved best with me are—

Baronne de Wassenauer.—Perhaps the strongest grower of all; wood very dark and spiny, blooming in large clusters of buds; not as mossy as some other kinds. Celine.—Hardy, moderately vigorous, spreading; foliage dark-coloured, leaves rather small; a profuse bloomer, but rather soft, and not very double. It would probably force well. Common.—The best of all; fine double flower. Crested.—The next best; very double. Gracilis, or Prolific.—This resembles the Common, but has a longer bud. Laneii.—A vigorous upright grower, and moderately free bloomer. Perpetual White.—Moderately vigorous; colour pure white; buds small and short-stemmed, in rigid clusters of from four to six; foliage pale green, leaves crisped. Not very hardy. White Bath.—With me the best white.

The so-called Perpetual Mosses seem to me a myth as Moss Roses; they may be perpetual, but they possess very little moss, and the only variety that I have been able to save is Mme. Moreau, which is a perpetual free bloomer.

The few suggestions I have endeavoured to present to you have been gleaned from personal observation in planting, tending, nourishing, and comparing, with results as here briefly stated.

The discussion which followed on the reading of Mr. Spooner's paper will be given in a future issue.

PEAR OLIVIER DE SERRES.

THE majority of Pears to which prominent attention has been given in our columns are either early or midseason varieties. We now submit a late Pear that will be familiar to many of our readers, but which, nevertheless, is not grown by the majority. The fruit figured was grown by Mr. Haycock, who regards Olivier de Serres as one of the very best late Pears. Without doubt it is a variety of great excellence, and, like other late sorts, requires the aid of a wall for producing the fruit in the best condition. The following is our description of Olivier de Serres—Fruit, medium

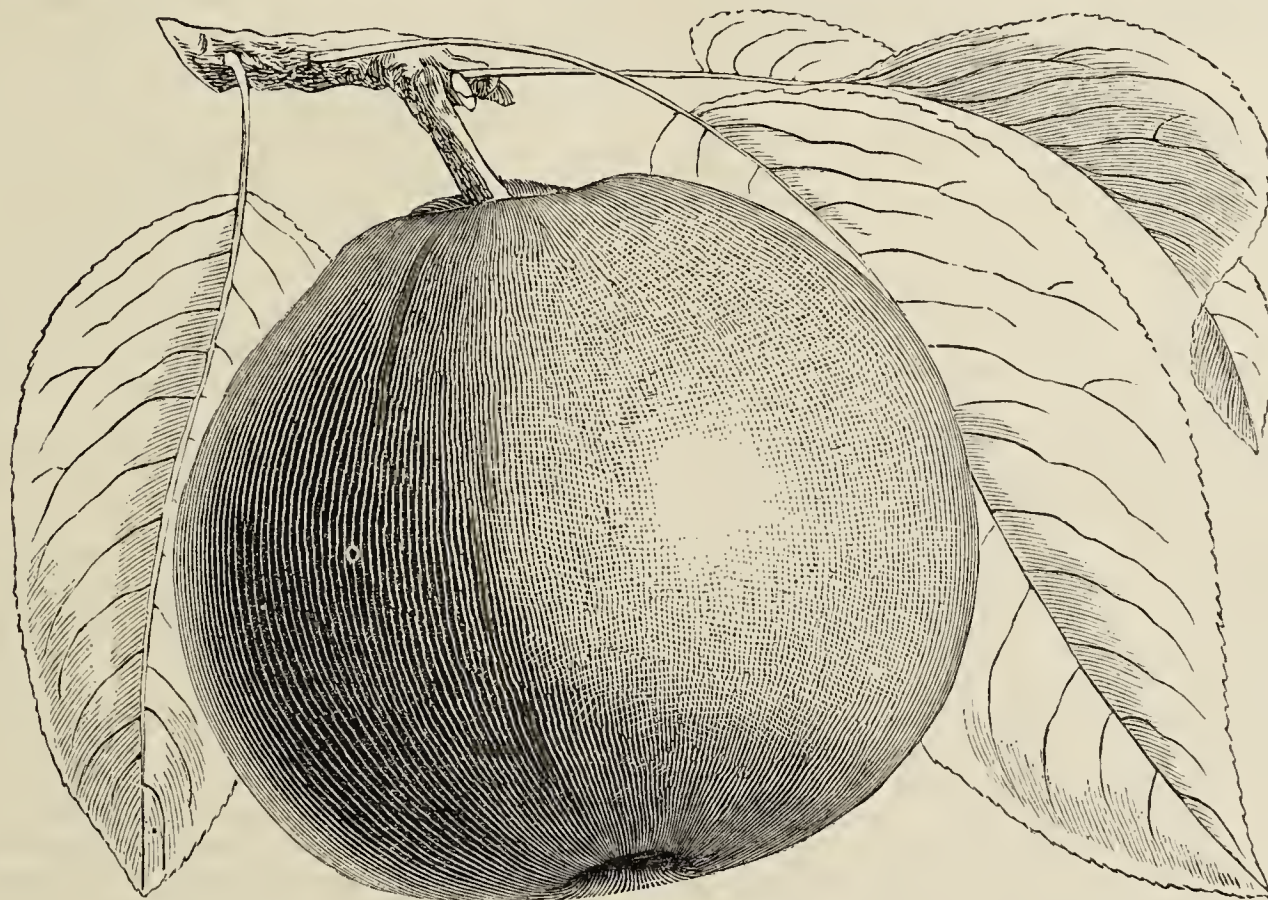


Fig. 4.—PEAR OLIVIER DE SERRES.

sized, $2\frac{3}{4}$ inches wide, and $2\frac{1}{2}$ high; round, flattened, or bergamot-shaped, sometimes irregular in its outline. Skin entirely covered with cinnamon-coloured russet. Eye large and closed, set in a pretty deep basin. Stalk three-quarters of an inch long, very stout, and thickest at the end. Flesh half buttery, sweet, with a brisk vinous flavour and a strong musky aroma. A delicious Pear; in use from February to March. It is, perhaps, one of the best very late Pears, of which there are so few. The tree bears well, makes strong standards and handsome pyramids, either on the Pear or Quince. It was raised by M. Boisbunel of Rouen. It first fruited in 1864, and was named in honour of Olivier de Serres, author of "Le Théâtre d'Agriculture et Mesnage des Champs," published at Paris in 1600.

ARBUTUS UNEDO.—Writing in "Science Gossip" Mr. John Rasor gives the following interesting notes on the Strawberry Tree:—"All who have visited the lovely Lakes of Killarney will not fail to have noticed this beautiful shrub, beautiful at all times with its dark glossy green leaves, forming a charming contrast with the rock on which it loves to dwell, but especially so at this season of the year, when it is all aglow with blushing and ripe fruit peeping out here and there amid the foliage. As to the quality of the fruit, it is altogether a libel to call it 'Unedo' 'one I eat,' as if no 'one would choose to try a second.' Those who have eaten the fruit of the Strawberry Tree ripened under the sunny skies of southern France will,

I think, agree with me that it is excellent eating, indeed it is not uncommon to have it for dessert at the tables d'hôte of some of the hotels in the Riviera; we propose to dub it 'Multedo.' The other day I came across an old work which must be at least 150 years old, from which I propose to cull a few notes that may prove interesting. It seems that the Arbutus does not grow wild in any other part of Europe nearer to Killarney than the Alps. M. Tournefort observes in his travels that it also grows wild in the island of Candia. The Arbutus, saith Sir Thomas Molyneux, is not to be found anywhere of spontaneous growth nearer to Ireland than the most southern parts of France, Italy, and Sicily, and there too it is never known but as a frutex or shrub, whereas in the rocky parts of the county of Kerry, where the people of the country call it the Cane Apple, it flourishes naturally to that degree as to become a large tall tree. It also does so in Mount Athos and Macedonia, and Pliny quotes it as a thing extraordinary that the Arbutus grows to a high tree in Arabia. Doctor Molyneux adds that the trunks of the trees in Ireland have been frequently $4\frac{1}{2}$ feet in circumference or 18 inches in diameter, and that the trees grow to about 9 or 10 yards in height, and in such plenty that many of them have been cut down to melt and refine the ore of the silver and lead mines discovered near Ross Castle. The writer continues—"The Arbutus which clothes these islands gives even haggard winter the beautiful appearance of spring, for in that melancholy season this tree puts on its highest bloom, which, rarely growing in other places, is the more likely to be admired by strangers in this. The preparation of charcoal for the ironworks hath been the occasion of a great destruction of this beautiful tree in other parts of the country, and it is said that even here it suffered much

by an accidental fire that laid waste a great part of a forest. Its growth upon rocks of marble where no earth appears and so high above the surface of the water, renders it a matter of both surprise and pleasure. Upwards of forty islands in the lakes are covered with an intermixture of these trees and other shrubs, besides at least a fourth part of the ascent of the mountains, the verges of whose bases, like that of Mangerton and others, are washed by the waters of the Lakes.' Many interesting inquiries are suggested by this tree. Dr. Cooke writes to me to say that the plants of the *Arbutus* in Kew Gardens have no fruit. Why should it ripen at Killarney so readily and not at Kew? and again, why is it found so common in Kerry and nowhere else in the British islands? Let me add one word of caution to those of my readers who may be intending to visit Killarney next year, and who may wish to buy any of the ornaments said to be made from the wood of the *Arbutus*. This wood is very rarely indeed used for that purpose, as it is very difficult to work on account of its extreme hardness."



KITCHEN GARDEN.

SUCH operations as digging, trenching, and applying manure are well advanced, but where from the press of other matters these are in arrear an effort should be made to have them performed with as little further delay as possible.

As the seed lists are arriving we are reminded that the time has come for securing the needful supplies for the ensuing season, and, therefore, give the following list of vegetables that have proved the best of their kinds as a guide to the uninitiated. Peas—William I. and First and Best in the earliest sorts, which grow about 3 feet high. Of the second or general crop sorts Criterion, Telephone, and Huntingdonian, which grow 5 or 6 feet high; whilst Dr. Maclean, Marvel, Stratagem, and Veitch's Perfection are of medium height. For late crops Ne Plus Ultra and Emperor of the Marrows growing about 7 feet; and for medium height Maclean's Best of All and Premier. Broad Beans—Carter's Leviathan, Monarch Longpod, and Improved Windsor. French or Dwarf Kidney Beans—Osborne's Forcing, Canadian Wonder, and Negro Longpodded; and of the tall or running varieties Scarlet Champion. Beet—Egyptian as an early sort, Dewar's Dwarf for general crop, or Pinc Apple Short-top Borecole or Kale is well represented in Dwarf Curled and Cottager's. Broccoli—Veitch's Self-protecting Autumn, for the season indicated and winter; Cooling's Matchless and Leamington for spring use, and for late use Lauder's Goshen and Model. Of Brussels Sprouts The Aigburth is very fine, but the sprouts are too large for some, hence imported seed may be preferable.

Cabbage.—Ellam's Early Dwarf, Hill's Incomparable, and Nonpareil Improved, with Red Dutch for pickling. Of Carrots Early Nantes, James's Intermediate, and Red Surrey. Cauliflowers—Early London, Walcheren, and Veitch's Autumn Giant; for forcing, Veitch's Early Dwarf. Celery—Major Clarke's Red, Williams's Matchless Red, Sandringham Dwarf White, and Wright's Giant White. Of Chicory, if it be grown, Brussels or Witloef is the best; and of Cress, Curled. Cucumbers—Telegraph is the most generally useful variety for any purpose, and for outdoor growth Stockwood Long Ridge. Endive—Round-leaved Batavian and Picpus Green Curled. Leeks—Musselburgh. Lettuce—All the Year Round and Neapolitan Cabbage for summer, and Stanstead Park for autumn sowing; Early Paris Market being valuable for sowing early in frames. Of Cos varieties, Alexandra White for summer, and Brown or Bath Black-seeded for autumn sowing, Brown Sugarloaf being suitable for either winter or summer cultivation.

Melons.—Davenham Early, Eastnor Castle, High Cross Hybrid, Read's Scarlet-flesh, and William Tillery. Onions—Reading, White Spanish or Portugal, Brown Globe, and James's Keeping; and for autumn sowing, White Lisbon and Giant Rocca. Parsley—Fern-leaved is fine for garnishing. Parsnip—Hollow-crowned Improved; Student being esteemed for its fine flavour. Radish—the Scarlet and White Forcing Turnip with French Breakfast and Wood's

Frame are the best for forcing early, also for late sowings; Red and White Turnip and Long Scarlet for summer. Of Savoy's Early Elm for early crops, Drumhead and Dwarf Green Curled for general crop. Tomato—Orangefield Dwarf, Vick's Criterion, and Hathaway's Excelsior. Turnip—Early Purple-top Munich, Early Snowball, and Veitch's Red Globe, with Orange Jelly for August sowing for winter use. Vegetable Marrow—Custard, and Short-jointed Long White.

Continue taking up and placing under cover any early Broccoli which may be coming into use, a good supply of Cauliflowers being still forthcoming from pits, and Snow's Winter and Veitch's Autumn Broccolis are good outdoors. In order to meet the demand for Peas, when they first come into use sow plentifully to meet the requirements, sowing a good breadth of such kinds as William I., First and Best in drills about 3 feet apart on a south or warm border. For sowing at the base of south walls American Wonder is very desirable. Longpod Beans may also be sown on warm borders. Those sown in November will need dusting with quicklime, soot, or dry wood ashes to preserve the growth from the slugs. Where Peas were not sown in November a sowing may now be made in pots, placing about a dozen peas in each 3-inch pot, and standing them in any house from which frost is excluded, and when the seedlings are about 3 inches high the pots should be transferred to cold well-ventilated frames to well harden the plants preparatory to placing them out on warm borders when the weather is favourable in the spring. Although such kinds as William I. are most suitable for this purpose, others required early for exhibition—such, for instance, as Stratagem—may be treated similarly, a couple of seeds being placed in a pot; also Leviathan Bean, placing one bean in a 3-inch pot. Give regular attention to Cauliflowers and Lettuces in frames or under handlights, endeavouring to keep them sturdy by removing the top or sashes when the temperature reaches 35°, except in wet weather, when they should be tilted.

Forcing Department.—Introduce fresh roots of Asparagus, Sea-kale, Rhubarb, and Chicory, and maintain the requisite supply of Mustard and Cress by making occasional sowings; also French Beans. On prepared beds, when the soil has become warmed, sow in drills Early Horn Carrots and Radishes in alternate rows about 3 inches apart. The best Radishes for early forcing are Scarlet and White Forcing Turnip, French Breakfast and Wood's Frame are also excellent. Potatoes which are growing freely should be earthed up when requisite, and fresh beds as the soil becomes warmed planted with sets previously prepared; 10 and 11-inch pots with three sets in each are a ready means of securing early crops of Potatoes, advancing them in Peach houses, which is also a suitable place to start sets for succeeding crops, placing them not too thickly together on a layer of leaf soil, slightly covering them with the same. Continue preparing materials for fermenting beds and lining. Two or three parts Oak or Beech leaves to one of stable litter giving a mild and durable heat is most desirable, they being thrown into a heap, turned over occasionally, and watered if necessary. Sow Celery in pans for the first early crop, also Tomatoes, keeping them near to the glass. Tomatoes in pots should when showing the second leaf be potted off singly in 3-inch pots, and placed in a warm house near the glass, so as to keep the plants sturdy. French Beans in pots should be earthed when sufficiently advanced in growth, keeping them as near the glass as possible and in a temperature of not less than 60°. Introduce fresh supplies of roots of Mint and Tarragon in pots or boxes to a house where there is a gentle heat.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house the trees are now in flower, and should have a night temperature of 50° to 55°, and in the day allowing an advance to 65° from sun heat, ventilating freely above 55° whenever the weather is favourable for so doing. Admit a little air at the top of the house constantly. Whilst the trees are in blossom syringing must cease, but the paths and borders must be damped in the morning and afternoon of fine days; and if fermenting materials have been placed in the house this will hardly be necessary, as the moisture arising will be sufficient, especially at this time of the year. Under no conditions must a close atmosphere be allowed. In the driest and warmest time in the day artificial impregnation is

desirable to disperse the pollen, employing a camel's-hair brush or feather for gently placing the pollen on the stigma, or the trellis may be shaken occasionally whilst the trees are in bloom. The Vines in the second house, which are usually started early in the year, are now, owing to the weather, in a more advanced condition than they are generally three weeks hence, the trees now having the blossom showing colour, and will only need to have fire heat to secure a night temperature of 40° to 45°, and 50° by day, above which ventilate freely. Syringe morning and afternoon until the blossoms expand, when it must be discontinued, damping only the paths and borders in the morning and early afternoon on bright days. The trees in the third house, which it is customary to start early in February to afford ripe Peaches in July, have the buds already swelling, and must not longer have the pruning and dressing delayed, securing to the trellis, and having all in readiness for a start when the time arrives, ventilating freely at all times, except when frost prevails. All the trees in late succession houses now require pruning, dressing with an insecticide and securing to the trellis, removing the loose surface soil down to the roots, and supplying 2 or 3 inches' depth of fresh loam, to which has been added a small proportion of bone meal and wood ashes. If there is any doubt about the border being in a moist condition make an examination, and if necessary afford a thorough supply, for if the trees become dry at the roots it is more than probable the bloom buds will be cast at a later period.

Melons.—This is a good time to sow for the first crop, half filling 3-inch pots with moderately light soil, placing a seed in each, and covering about half an inch deep with fine soil. The soil should be so moist as not to require water until the seeds have germinated, and if the pots can be plunged in a bottom heat of 80° to 85° it will be an advantage, but the seedlings must be kept near the glass to insure a sturdy growth, and being sown low in the pots the young seedlings can be earthed as they grow, which will greatly strengthen them, and is preferable to sowing several seeds in a pot and to potting the plants singly, which always gives a check, especially at this early season.

[PLANT HOUSES.]

Stove.—Some plants of *Allamandas* must be now started for early flowering. They having been well ripened the wood will be quite hard, and may, if the plants are full-sized, be cut back to where they were pruned to last year, but under any circumstances they must be cut back to well-ripened wood. The potting should be done at the time of pruning, reducing the old ball about half, and if dry soak in tepid water until thoroughly moist, and then return to the same size of pot, draining efficiently, and ram the soil quite firm, which should consist of turfy loam, with a fifth of decayed manure and a sixth of crystal sand, placing the plants near the glass, and syringing them twice daily. *A. Hendersoni* and *Chelsoni* are the best varieties to commence with. Plants that are placed out may also now be cut back, they having been kept dry at the roots to insure the ripening of the wood, and having the loose surface soil scraped from the roots and fresh material supplied as advised for potting. Where quantities of flowers are required, and space on the roof can be given for planting out, considerably larger and more durable flowers are obtained than from pot plants, similar remarks applying to *Bougainvillea glabra* and *Clerodendron Balfourianum*. Plants of the two last which have been rested may now be started for early flowering, the *Bougainvillea* being cut back, and when the young shoots have pushed an inch reduce the ball and repot, employing the compost advised for *Allamandas*. The *Clerodendron*, on the other hand, must not be repotted until after flowering.

Stephanotis which has been kept rather cool and dry should be encouraged by an increase of heat and moisture to make growth, training it near the glass to insure free flowering. Plants of this and those previously named which it is not desirable to start for some time may be kept dormant by placing them at the coolest end of the stove, giving sufficient water only to prevent shrivelling. *Ixoras* and *Dipladenias* should be kept at the warmest end of the house, but do not increase the temperature until the days lengthen; keep at 68° to 65° at night, and 70° to 75° by day. *Gardenia citriodora* is now in fine bloom, its Orange-like blossoms being useful when mounted for bouquets, and its fragrance delightful. It should

not have any water on the foliage and not too much at the roots, or the flowers will be of short duration. *G. intermedia* with the buds in a forward state should be given an increase of temperature, but not too much, or the buds will fall, and the moisture at the roots and atmosphere must be moderate, or it will have a similar tendency by inducing growth instead of the swelling of the buds. A few *Amaryllises* now placed in heat and given an increase of moisture will come in in advance of the general stock and prove acceptable. *Hippeastrum pardinum* is now flowering freely, some plants having two scapes from a bulb, and are very useful. This from its free-flowering habit and easy culture should be grown by everyone with a stove. *Imantophyllum miniatum* if given a slight increase of temperature and moisture will throw up its umbels of bright flowers and be useful; indeed, by having relays of plants started at intervals the flowering is prolonged over a lengthened period.

Fine-foliage plants, not only as plants for decoration, but as affording leaves or sprays, are almost as indispensable as flowers, and attention should be given to starting a batch of *Caladiums*, potting in good turfy loam with a little well-decayed manure and a sprinkling of sand, placing them in a light position and not supplying heat or moisture too freely, or the plants will be of little value when in a drier and cooler atmosphere. *Crotons* with shoots 10 inches in length and in good colour, detached, inserted in small pots, and placed in a brisk moist heat in a close frame, will root freely without losing the lower leaves, and be very useful, especially the narrow-leaved section, for decorative purposes. *Dracenas* that have become tall should be notched directly under the head. Leave the stem a little above and below as well as over the incision covered with moss and wrapped with small copper wire, and kept moist; they will be rooted in about six weeks, and may then be detached and potted. *Acalyphas* from their bright-coloured leaves are useful for decoration; the tops of well-coloured shoots strike readily treated similarly to *Crotons*. Small plants of *Pandanus Veitchi* are very effective and should be increased whenever suckers are obtainable, inserting them singly in small pots in sandy loam, and when rooted place them in a light position.

Plants of *Adiantum cuneatum* which have been rested and have brown fronds should be cut down and introduced to a stove temperature, encouraging with plenty of moisture, and they will soon form splendid heads; and grown near the glass the fronds, though paler in colour, will be more durable in a cut state from their harder texture. All Ferns required for a similar purpose should be grown in as much light as they will bear, which applies to almost all plants required for decorative purposes.

THE BEE-KEEPER.

PROGRESS.

IN practical and scientific apiculture considerable advancement has been made during the last ten or twelve years. Though slow the progress has been certain and encouraging. Many clever apiarians of the present time had not mastered the rudiments ten years ago. This advance has been made amidst the discouragements of unfavourable and disastrous seasons for bee-keeping in England. If the country had had seven years of sunshine out of the last ten instead of seven years of cloudy and unpropitious weather, the value of bees to the community would be better known and consequently more highly appreciated. Notwithstanding the inelement seasons and unfavourable harvests, bee-keeping is moving onwards in the right direction. Knowledge is spreading; inventions great and useful are introduced; old and experienced men use them with advantage and grasp the whole subject of bee-keeping more firmly. Many young men who a few years ago were commencing attention to the subject have advanced and are expert in all manipulations in the apiary. Much knowledge has been widely spread during the last few years, and almost everywhere happy results are already evident. We predict that the progress will increase, and that bee-keeping will yet become a source of happiness and profit to thousands of the rural population of Great Britain and Ireland.

During the last ten years we have lamented the misfortunes of

beginners, for two destructive seasons killed every bee in some gardens; in others one-half, two-thirds, or three-fourths were lost. Other seasons, not destructive, but unfavourable for honey-gathering, caused great disappointment amongst beginners. Some lost heart altogether, and some thought that a change of hives from straw to wood, or wood to straw, would bring success. In many cases the change was made at some expense without better results. Apiarians are, however, hopeful and strong. A few days ago I had a letter from an experienced bee-keeper in the north of Scotland, who is anticipating a bright and successful future not remote. And why should he not? People who plant orchards look hopefully forward, and derive encouragement and pleasure by considering the future. Bee-keepers who have been successful some years are like other successful men in expecting greater success in future. I counted my hives the other day and looked into a considerable number of them, and found them in splendid condition: I thought then, and think now, that I never had better hives at this time of the year, never had brighter prospects, and never anticipated greater results. Admitting the uncertainty of seasons in our extremely changeable climate, we all know, and experienced apiarians believe, that we shall have a return of warm summers and honey harvests; and we have good reasons for believing that when they come the results of bee-keeping will be better than those of the past. Bees are always industrious; they never degenerate—at least we have no evidence on record of a single instance of degeneration in the case of bees. Deterioration of industrial instincts or working powers has never been known. The bees of the hamlet now are equal in every sense to their ancestors a hundred years ago. If deterioration has not been known in the past, we see no reason to fear it in the future. As we have no reason to fear a degenerate race of bees, we have no good reason to expect an improvement of race. It may be possible to have better hives in future than those of the present, and doubtless improvements in management will be made from year to year, but the time is remote when man will improve the bee itself. We may learn lessons from bees, but they learn nothing from us.

The fact that hives are now larger and stronger in many apiaries than they were years ago is proof that great progress has been made. Mr. Raitt recently told the readers of the *Journal* that a gentleman had engaged his friend and late neighbour, Mr. William Mann, to go to a foreign country to manage a large apiary. When the gentleman returned from Blairgowrie to Manchester he told me that Messrs. Raitt and Mann say that if their strong hives have three weeks only of honey weather they yield splendid harvests of honey; and he concluded that if hives can do this in Scotland in three weeks they will do much more in summers of four months' duration in a warmer climate. We think so too, and believe that the enterprise in which Mr. Mann will be manager will be a very successful one. The projection of such a scheme in England indicates that progress is being made. English bee-keepers have been frequently told during the last ten years that little good could be done in bee-keeping with small hives, and that large results and profits come from hives of considerable size. All the best apiarians in the country are now using large hives, and this is strong evidence of an enlightened and onward march.

The introduction and use of artificial comb foundations is a marked improvement in the management of bees. Supering is made easy by the use of these foundations—easy for both bees and their masters. By filling supers and sections with the foundations the bees readily adopt them, and soon begin to thin the wax and lengthen out the cells, and make them ready for the reception of honey; thus the bees have less wax to secrete and more honey to store. The stronger foundations used for brood combs are as useful as those used in supering, for if given to first swarms at the hiving time breeding commences at once, even before the cells are finished, the eggs are deposited on the foundations, and the cells are afterwards built around them. If supering is made easy by employing comb foundation progress in breeding in swarm hives is made by their use. We thank the American bee-keepers for the invention and introduction of artificial comb foundations.

We are also, I think, indebted to the American bee-keepers for the introduction of sectional supers, which are useful in the retail honeycomb trade. Sections of 1 lb. and 2 lbs. of comb are very saleable, easily handled and carried. These small sections when well filled are so presentable and tempting on breakfast and tea tables that commendation is quite unnecessary. If exhibited for competition at honey shows they should be judged by number or weight from a given hive or from a single apiary. Larger supers of glass and wood are more sensational in exhibitions. Bee-keepers who study profit will use the kind of supers most

saleable in the market. Last season our glass supers, nearly 20 lbs. each, were sold at 2s. per lb.; straw and wood supers at 1s. 4d. and 1s. 6d. per lb.

The attention that is now given to the comforts of bees by advanced men is another evidence that progress is being made. A few years ago hives were not sufficiently protected in winter. Bees are natives of a warmer climate than that of England, and therefore suffer much in our cold winters. Many bee-keepers now know this and cover their hives well in winter. For many long years the most advanced bee-keepers in Scotland have covered their straw hives effectively. The advanced men of the bar-frame school are now having hives made with double walls, and fill the cavities between the walls with chaff. This is a great improvement, and in severe winters these chaff hives may be trusted to protect the bees. The honour of the invention of the chaff hives belongs to America. One more invention or discovery will perfect the bar-frame hive—namely, a material more porous than wood, which will permit the moisture of bees to pass through and out of the hives. We have so many clever bee-keepers seeking improvements now that I believe the discovery will be made soon. Meanwhile many men are doing what they can to ventilate the wooden hives and make their bees more comfortable in winter.

Evidences of progress in bee-management could be easily drawn from many points of practice now extensively followed. One pleasant feature of the progress already made by bee-keepers I would like to notice. It is the fact that they now write and speak more kindly of those who differ from them in opinion than they did some years ago. The best men amongst us—the real Samsons of bee-keeping—refrain to a great extent from employing dogmatic language. They know well that whatever is true in science and the practice of bee-keeping will advance steadily, and sooner or later establish itself. On many questions much can be said on both sides; therefore let us act on the principles of "free trade" and fair play in exchanging opinions, always remembering "kind words never die" and also that "charity never faileth."

In wishing all a happy new year and great success in future, let me ask young apiarians to bear in mind that great results more frequently come from perseverance than from great strength—"A falling drop will cave a stone."—A. PETIGREW, *Bendon*.

NUCLEUS HIVES—ILL-DEVELOPED BEES.

I SEE in an article on page 549, December 15th, 1881, by Mr. Cheshire, that the use of very small nucleus hives is open to grave objections. Before the article I refer to appeared I had given an order to make some nucleus hives, each to hold three frames, Woodbury size. Kindly let me have your opinion of them for queen-raising, and also for forming nuclei to be afterwards built up into stocks.

Last summer I noticed in my hives that many young bees died in a rather peculiar way. Some of them had just bitten through the covering of the cells in which they were hatched, others had got the head and thorax clear of the cell and died in that position. Can you let me know the cause of this?—FELSPAR.

[The lax lecturer who, if report says true, described a fossil as of the size of a piece of coral, was not apparently more indefinite than we have been in talking about "small nucleus hives." The one to which I referred, disparagingly certainly, in a late article, was itself introduced by another correspondent as "one that a queen came in from Italy with over a hundred bees." Such boxes, for the word hive is hardly elastic enough to be properly applied here, contain either one or two combs; if the former the cubic contents would be about 40 inches, if the latter perhaps as much as 90.

I do not think, for reasons given in the article which has called forth the above letter, that such boxes could at any season in our climate be profitably used in queen-raising, even if the sole object were to supply the market and we were not troubled with a conscience. But the nucleus hive of which our correspondent now writes is a different affair; it is to contain three Woodbury frames, and so would have not less than 580 cubic inches capacity—i.e., be from seven to fourteen times the size of the boxes in reference to which the strictures were written, while its population would range from two thousand to ten thousand, as one Woodbury frame is not fairly covered by less than about a thousand bees, and would easily take double or treble that number. Such a hive is able to take care of itself and may be readily nursed into a full-sized colony.

The twin nucleus frame which I invented about nine years since consisted of a dividing Woodbury frame, which fitted into a little hive 7½ inches long, 9 deep and 3¾ wide, with a cubic contents of 250 inches. Between the two half Woodbury combs a queen cell was inserted, and in these hives I raised many fine queens, and pretty constantly secured pure inbreeding by a modification of

what is known in Germany as Kohler's plan; but these hives, although much larger than the importation boxes, now and again, by reason of their smallness, occasioned the troubles to which I have previously referred, and have since given place to a system which involves less watchfulness and more certainty and economy, but which has the disadvantage of giving no control over fertilisation. I use Woodbury frames now only, and see no reason for desiring any alteration in the size for any purpose. A strong nucleus on three frames properly handled will winter with certainty if sufficiently and intelligently protected. (Cork dust packing is greatly superior to chaff for this purpose, a fact which hive-makers and others will in due time recognise.) And even two frames thickly populated stood last winter with me perfectly. But the practical point lies here: If we think it well to give our nuclei as much as three frames, why have any special hives for nuclei at all? The usual hive with a division board is sufficient—i.e., if the hive and division board are what they ought to be; and if this be true we save in plant, as every hive may serve for stock or nucleus as we may desire, which means greater convenience with less capital and less annual loss by deterioration.

A plan which I have devised and used with considerable advantage may be here described. Imagine a hive large enough to contain both stock and nucleus, to stand with its sides to the points of the compass, with its frames running due north and south, with a perfectly fitting division board. The entrance for the stock is on the west side, but at its southern end. The entrance for the not-yet-formed nucleus occupies about $2\frac{1}{2}$ inches of the eastern end of the southern side. Having queen cells approaching ripeness we form our nucleus thus: The hive is turned slightly upon its stand, so that the western side now points N.W., and the southern side S.W., by which it will be seen that the two entrances are right and left of the one to which the colony is accustomed. We lift out two frames, being careful not to remove the queen, and place them on the opposite side of the division board, and fill up the space as may be desired, cover down, and our nucleus is so far formed; or we take two frames containing some brood from some other hive, clear off the bees, and place on the nucleus side of the division board. The bees in flight will soon cover them sufficiently. The succeeding day a queen cell may be grafted in and left till the hatched queen begins to lay. If we deal in swarms the nucleus may be closed on the evening of one day, and the swarm driven from the stock on the next, when the queen in the nucleus should be caged, the hive turned to its old position, the division board removed, the combs pushed together, and the flight hole of the nucleus closed. The bees unite for reasons that a little sketch which each may make for himself will render clear. Precautions, which space forbids to introduce, will of course be necessary, but these are quite generally understood. We have here a ready way of adding a new queen to a swarmed stock without loss of time, or without any additional hive.

The reason of the dying of the bees in the act of extrication from the cells it is not easy to give without knowing somewhat of the history of each case. As this occurred in "summer," it might possibly have arisen from over-artificial swarming, by which too few bees were left to keep up the conditions requisite for the perfect performance of the transformations of the pupæ. If a frame containing sealed brood be removed from a hive in warm weather some of the bees will reach a quasi maturity even days after, and some may, and probably will, die half out of the cells as our correspondent describes. My previous references to deformed lepidoptera and the dying of birds in the shell apply here, and the matter for greatest astonishment rather appears in the fact that in natural conditions so very few bees die during the period of transformation, which all physiological analogies would lead us to suppose was one of very great strain upon the vital energies, and one consequently in which failure and death would be peculiarly likely to occur.—FRANK R. CHISHIRE, *Avenue House, Acton, W.*

TRADE CATALOGUES RECEIVED.

William Paul & Son, Waltham Cross.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*

J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*

Robert Veitch & Son, High Street, Exeter.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*

Hooper & Co., Covent Garden, London.—*Spring Catalogue of Flower and Vegetable Seeds (Illustrated).*

Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*

Dickson & Robinson, 12, O'd Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds (Illustrated).*

George Bunyard & Co., Maidstone.—*Catalogue of Flower and Vegetable Seeds.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Moving Orchard-house Trees in Pots (J. E.).—We are obliged by your letter. We will consider your plan, and ascertain, if possible, if it differs from other methods that have been projected with the same object.

Planting Potatoes (M. A.).—The quantity of seed, estimated by weight, requisite for planting an acre depends entirely on the size of the tubers. As we have not the slightest idea whether you intend planting large, medium-sized, or small tubers, our best plan will be to state the number required, which at $2\frac{1}{2}$ feet by 18 inches is 11,616. If you weigh a stone or hundredweight and count the tubers, a simple multiplication sum will show you the quantity by weight you require with exactitude.

Liquidation (W. E.).—The business of the firm to which you allude is, or was, in liquidation, but we are not able to inform you of the result, and we believe the tale is carried on as usual. You could ascertain what you require by writing to the firm in question.

Cineraria Leaves Eaten (Saxoring).—There are certainly no aphides on the leaves you have sent, which are very clean and healthy. Aphides would not injure the leaves by eating them the same as yours are injured, nor are the perforations caused by the leaf-mining insect which is occasionally destructive to Cinerarias. The leaves you sent were so much withered that it was difficult to examine them, and we failed to perceive an insect of any kind. Still undoubtedly they have been attacked, and we believe the enemy is a small weevil; this possibly you detected. You had better examine the plants carefully at night, by suddenly turning a strong light on them, and you may possibly observe the predators at work. They are, however, very difficult to "catch and kill." Possibly syringing the plants with quassia water, made by boiling 2 ozs. of quassia chips in a gallon of water for fifteen minutes, would render the leaves distasteful to the insects. Fumigating is of little or no use, and strong tobacco smoke might injure the plants. If the beetles are the cause of the injury they either creep up the pots or lurk in the soil; if the former is the case a strand of soft hemp cord covered with birdlime, or a mixture of resin and sweet oil, two-thirds of the former and one of the latter, would arrest their progress. If they are in the soil, removing carefully the surface and adding fresh compost would be beneficial.

Potatoes for Planting (H. S. J., Bath).—We consider the large tuber needlessly large, and the small one too small. The former is too large because so many growths as it would produce would necessarily cause overcrowding, and the best and soundest crops cannot be had if the foliage is not exposed to the light and air. The other tuber is too small, because it not only contains a great number of eyes, but these are small and the growths would be weak, and a great number of weak growths produce a great number of small tubers. To plant such large sets as the one you have sent would be a waste of produce. If the tuber were divided longitudinally either half, or even one-third of it, would produce a crop equal to that which would follow if the tuber were planted whole. We prefer sets weighing from 2 to 3 ozs., each having two or three strong eyes, the weaker eyes being removed. Your method of managing sets when cut is good, and thus prepared we consider them about equal to whole tubers.

Conservatory Faulty (A. W. K.).—The structure of which you have sent a plan appears to have been designed for architectural effect rather than for its adaptability for the culture of plants. There are many such structures, and we always pity the gardeners who have to manage them. They are really plant-killing houses, and cannot be kept satisfactorily attractive unless good houses are also provided for growing plants for a short sojourn in the conservatory. We are unable to form an opinion on the efficiency or otherwise of the ventilation, as you do not make this matter clear; but the house is much too dry, and you will find it difficult to maintain the plants in health. A bed would be better than a glazed floor for the plants. If crushed white shells or spar were placed an inch thick on the slate stages over the pipes and kept moist the plants would thrive better, and the appearance of the stage would be at least as good as now; a heading would, however, be needed for holding the material. Such plants as green Dracaenas, variegated Yuccas, Agaves, Cycads, Rocheas, and succulent plants generally, including Echeveria retusa and others of the genus, also Gasterias, Haworthias, and similar plants, succeed in dry houses. Amaryllises would also do fairly well, and as climbers Bomarea Carderi and Senecio macroglossa. Araucaria excelsa with its congeners, and such Palms as Chamerops Fortunei, Corypha australis, Scaevola elegans, and an Areca Intescens, might also succeed. But whatever is grown will need careful attention, and every means must be adopted to maintain a moist genial atmosphere.

Wintering Salvias (D. D.).—Those you name require the same treatment as S. splendens. When the plants have ceased flowering cut them down, but not below all the leaves, or the stems may decay, and place them in a light position in a greenhouse or other structure having a minimum temperature of 40° . Where space is limited it is a good plan to strike a few cuttings in August or early September for forming stock plants, these being established in 5-inch pots. Such plants occupy little space in winter, and not infrequently produce better cuttings in spring than larger plants do that have become partially exhausted by flowering. When these small plants are provided, the larger, which occupy much space, can be thrown away when the flowers have faded. The best mode of preparing Salvias for flowering in a small greenhouse is to plant out some stock plants in a sheltered position in the open garden in early June. In a

month or six weeks they will have made strong and sturdy growths. If these are inserted singly in small pots and kept moist in a close frame they will strike readily, and if shifted before they are root-bound into 5-inch pots they will form dwarf healthy plants and fine flower spikes. We have seen plants of *S. splendens* and *S. Bethelli* in 5-inch pots this winter with from six to twelve flower spikes a foot long on each. Of *S. Pitcheri*, however, a number of cuttings should be inserted in a pot, shifting without dividing the young plants, and a charming effect is produced by the mass of blue flowers.

Leaves for Mushroom Beds (Failure).—We have never made a Mushroom bed with leaves alone, but we have used one-third of Oak leaves with two-thirds of stable manure with excellent results. Mr. Bardney's communication to which you refer is probably the following:—"The system that I adopt with leaves is as follows: The leaves were collected as they fell and thrown into a heap until sufficient were gathered to make up a bed; the heavy rains were kept off them so as to keep them in a tolerably dry condition. They remained in the heap about a fortnight, and were turned at intervals of three or four days, after which they were pressed as firmly as possible in a bed. In a few days the bed became very hot, and was lightened to let out some of the steam. Shortly afterwards the surface was firmly beaten down and soiled with 4 inches of good fibry loam with a seventh of leaves, mixed together and beaten firmly. When the heat was on the decline the bed was spawned, the spawn being inserted about 1 inch deep, and 2 inches of good loam was placed on the top, the whole being made very firm, and precautions taken that the bed did not get too hot after being spawned. We have mixed about a seventh part of decayed manure with the loam, only using leaves for the purpose of maintaining heat in the bed, which they will do for a long time if used in a moderately dry state. I would not recommend decomposed manure to be used with the leaves. Although we gathered several Mushrooms the bed did not continue bearing long. It is not a good plan to use too many leaves mixed in the loam, as they have a great tendency to cause the spawn to run very stringy. I do not wish to convey to the readers of the Journal that I would use leaves in preference to droppings, provided the droppings were not produced under the circumstances referred to in my previous letter. Droppings from horses receiving medicine and Carrots are useless for the Mushroom grower, and leaves are certainly to be preferred."

Northern Spy Apple (G. O. S.).—You will not succeed in raising this variety from pips; you may raise trees readily by sowing the pips in spring, but the produce of the majority of them will probably be worthless. Northern Spy, although an American Apple, is included in the collections of the leading nurserymen in this country, and you ought not to experience any difficulty in purchasing trees. The following description and reference to this Apple in the "Fruit Manual" may not be without interest:—"Fruit fragrant when ripe, large, ovate, inclining sometimes to conical. Skin thin, at first of a greenish yellow on the shaded side, and on the side next the sun covered entirely with a thin, pale, crimson check, which is covered with broken streaks of a darker crimson; but as the fruit acquires maturity after being kept, the shaded side changes to a rich golden yellow, and the crimson becomes brilliant. The whole is covered with a thin bloom like a Grape. Eye small and closed, set in a very deep, narrow, and furrowed cavity. Stalk three-quarters of an inch long, slender, deeply inserted in a wide hollow. Flesh white, very tender, fine-grained, crisp, and very juicy. Juice sprightly, sweet, and with a fine delicate aroma. A valuable dessert Apple; in use from December till May. The tree is a fast and vigorous grower, and has an upright habit. When it acquires a little age it is an abundant bearer; but it is apt to become bushy-headed, and therefore requires frequent attention to keep the head open and free of spray. This excellent Apple originated about the year 1840 in the State of New York, on the farm of Oliver Chapin of Bloomfield, near Rochester. It belongs to the Spitzenburgh race, and bears some resemblance to the *Esopus Spitzenburgh*. Gradually it became a favourite among American orchardists, and in 1845 we find it one of the sorts which were recommended "for trial" at one of the pomological conventions. In 1847 the fruit was sold in New York at 12½ cents each. It is now largely imported into this country annually.

Digging and its Cost (B. P. S. and D. W.).—The best time for digging depends greatly on the condition and character of the soil and the state of the weather. Mr. Peach has epitomised the subject of digging as follows:—"A golden rule is, Never dig the ground if you can avoid it when the soil is too wet or too heavy, so as to stick to the tools and run together into lumps by being trodden on. Soils differ so much in their character it is very difficult to lay down any general law; but whenever a crop is off and the land cleared, the sooner it is manured and dug over when the weather is propitious the better. Some land may be dug even after heavy rain and wet weather after one dry day, when other land had better not be touched till after a week or ten days of dry weather. As a rule it is better not to dig during frost; but heavy unctuous loam or clay is better for autumn-digging in dry weather, well-decayed vegetable manure with ashes being added. No greater mistake is often made with Potatoes than planting the sets in the middle of fresh manure, and then earthing up; and the same is true of nearly all crops. The manure should be well decayed or fermented beforehand, care being taken that it should not be exposed to too much rain, and that the liquid manure should be saved in tanks or from time to time put on to the heap of manure as it is turned over; but no vegetables like a great lump of wet manure to grow in, and the object of cultivation is to subdivide it." The usual prices for digging light garden ground a spit deep are 1½d. and 2d. per rod, heavy ground 3d.; trenching light soil two spits deep 10d. per rod, heavy soil 1s.; bastard trenching of light soil 6d. per rod, heavy soil 8d. A statute acre of land may be dug by a man with the spade, to a depth of 9 to 12 inches in a free soil, in fourteen to twenty-one days. Further information on digging may be found in Nos. 889 and 891, which can be had from the publisher in return for 7d. in postage stamps.

Sprays for Name (J. H., Perthshire).—The specimens to which you refer have not been received.

Names of Plants (H. B.).—1, *Adiantum Capillus-Veneris*; 2, *Pteris argyrea*; 3, *Adiantum formosum*; 4, *Asplenium flaccidum*. (*R. C.*)—1, *Pteris serrulata*; 2, *Pteris cretica*; 3, *Blechnum brasiliense*; 4, *Asplenium falcatum* var. *caryotideum*. (*C. E. M.*)—The specimens were not only very small, but being sent enclosed in a letter they were so crushed that most could not be recognised; 2 is *Duranta Baumgardtii*; 4 resembles *Iris foetidissima variegata*. (*G. W. A.*)—1, Apparently an *Orchid*, but completely crushed so that it cannot be recognised; 2, *Nicotiana undulata*.

Bees Leaving Hive—Dying—Feeding (E. T.).—Feeding with syrup at this season is not to be recommended. Excitement is always caused, and the bees fly abroad, seeking in the fields in vain for those sweets that they are conscious their companions are obtaining somewhere. The evil is only reduced by applying the bottle at night and removing it in the morning. If feeding now be necessary, give a cake of barleysugar over the frames, covering it down

with the quilt. The plan for making barleysugar has before been given, but is repeated in short, as you may desire to set to work at once. Put sufficient loaf sugar into a saucepan, and add a little water; not more than half a pint to 4 lbs. of sugar. Carefully stir during the time of melting over the fire. Try it by placing a drop from your spoon upon a sheet of glass, or a plate; if in a few seconds it sets sufficiently to admit of being pushed out of form by the finger without sticking, it is done; if, however, it is clammy, you must either boil away more of the water or melt in more sugar. At the completion of the boiling, take from the fire and place on a sink, or other cool spot, and continue to stir without interruption. As soon as the barleysugar is showing signs of stiffening pour out into a pie dish, wide saucer, or baking tin, in which you have previously placed a sheet of thin paper. When the barleysugar is cooled, place it over your hive with the adherent paper upwards.

COVENT GARDEN MARKET.—JANUARY 4.

OUR market still keeps very quiet, and prices remain without alteration.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	1 0 to 3 6	Lemons.....	½ ease	12 0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Nectarines....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	½ 100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
„ Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	„ dessert.....	dozen	1 0 3 0
Filberts.....	½ lb.	0 0 0 0	Pine Apples....	½ lb.	1 6 2 0
„ Cobs.....	½ 100 lb.	75 0 0 0	Strawberries...	per lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	½ lb.	0 6 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	„ pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0 4 0 6	„ Kidney.....	bushel	3 0 3 6
Capstems.....	½ 100	1 6 2 0	Radishes....	doz. bunches	1 0 0 0
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzoneria.....	bundle	1 6 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	½ lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	½ lb.	0 6 0 0	Tomatoes.....	½ lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

A RETROSPECT OF THE HOME FARM, 1881.

HAVING in previous years furnished the home farmer with a retrospective statement of the various occurrences which have to some extent influenced his proceedings in the past, we will now record the leading agricultural events of the year 1881 as affecting the cultivator. Although many of our remarks may apply to farmers generally, either as tenants or as occupying their own property, still our observations will be directed chiefly to the home farmer in consequence of his peculiar position. Untrammelled as he is by a lease which often prevents the tenant farmer acting in accordance with his own interest to the fullest extent, the home farmer is enabled to carry out the duties and responsibilities of his position upon the best principles of agriculture so as to be beneficial in the highest degree. They may be carried out in their entirety except in those cases in which peculiar requirements may justly influence the proceedings, but we trust that generally this happens only in a slight degree. By these remarks it is our object to claim for him the power to exercise his intelligence, industry, and perseverance, in order that he may conduct the affairs entrusted to him with benefit to the estate and credit to himself. During the past year we have endeavoured, as usual, not only to call attention to the various subjects, but we have also, under the heading of "Work on the Home Farm," contributed our ideas and experience by giving hints in cultivation and the management of cattle, &c., best adapted to the requirements of the farm.

The agricultural year may be considered to commence with the month of October, and for one particular reason, that of the sowing of Wheat, Rye, winter Oats, Beans, and Barley, and also the catch crops, such as Trifolium and Vetches; the past agricultural year will, therefore, according to our view commence from October, 1880. The seed time for the crops we have just enumerated was from that time carried on with great difficulty, especially in certain districts in the north and midland districts, including the fen lands. The rainfall was great, and it was only at short intervals that seeding could be done, and before it could be completed frost and snow commenced and prevailed with little variation until late in the spring. It will be remembered that much of the Wheat was very thin, and with a short acreage sown the prospect in the early spring was poor of the Wheat and catch crops. These were extremely deficient, and large areas were ploughed up and resown in consequence of the severity of the winter. The plant of Clover and artificial grasses also suffered to some extent from the same cause. However, when once the seedtime for Lent corn commenced, Nature paid some of her debts by giving us one of the best springs for cultivation of the land and sowing the various crops we can remember. Not only had we plenty of moisture to make the land work freely, but also to enable the Lent corn to vegetate immediately it was sown, a larger area also of which was sown in consequence of the land unsown with Wheat, and the favourable nature of the spring seedtime.

The first sowing of Mangolds and the planting of Potatoes proved very favourable, and a good plant of the former was the result, but the weather continued so dry that those farmers who were a little later in sowing found the land too dry for the seed to germinate regularly. This seriously affected the Mangold crop, and those who were unprovided with good strong Cattle Cabbage plants to make out deficiencies were greatly disappointed, for they obtained only a poor crop of roots. The same observations apply with equal force to the Swedes, Carrots, and early Turnips in the northern districts. But not only did the growers of these roots suffer more or less throughout the kingdom from the lack of moisture, but the Turnip fly prevailed to such a great extent that its depredations were never greater within our recollection. The only way that we noticed a successful remedy applied was by transplanting Cabbage, Kohl Rabi, and Kale along the lines where the plants of Swedes had failed, thus showing the actual necessity of the home farmer being prepared at all seasons of the year with plants of all kinds.

The dry weather which so much injured the root crops also had the effect of reducing the hay crop upon all arable land and upland or dry parkland pastures. We have, therefore, to record from all but irrigated pastures one of the lightest crops we can remember. As usual in such seasons, it was generally well got and of fine quality, except in some of the northern districts, where the grass during the dry weather was allowed to remain and increase in growth; but although the quantity was increased, the heavy rains of the following months seriously damaged the produce. The result of the short hay crop and the deficiency of grass in the pasture districts, as well as on hill farms on the chalk and sandstone formations, was very much against the occupiers of such lands, for the breeding flocks had a short allowance of green fodder during several important months of the spring and summer. What, however, made it more disastrous was the partial failure of the catch crops, as well as the scanty produce of grass, in consequence of which many flocks could be maintained in fair condition only by the outlay of considerable sums of money for cake and corn feeding. Dairy cattle, too, in some instances suffered in some degree, particularly in the absence of irrigated meadows.

We have found that in a few cases after the summer rains commenced, and which in the northern districts continued until October, that the sheep have suffered from the fluke, but not to the same extent as in two previous seasons, for the home farmer had very serious reasons for avoiding feeding sheep on certain pastures, taking care to have them only with cattle, which are not so subject to take the fluke entozoa, especially if the grass is not fed down too bare. This, however, induces us to notice that a further caution is necessary, which is not to feed sheep on pastures adapted for feeding bullocks and dairy cows, for we hold that we cannot maintain pastures in a full state of fertility if fed off by sheep. The permanent white Clover which is found in the best pastures is sure to be injured if not destroyed by sheep feeding.

During the past year the fall of lambs of the different breeds has been a full average, and both sheep and cattle have been freer from disease than in the previous year, 1880. Still, if we look to the statistical returns of our live stock, we shall notice

that our stock of sheep has diminished by something like six millions within a few years, owing probably to the fluke rot, epidemic lameness, &c. Foot-and-mouth disease has also affected cattle to some extent, but not enough to tell much in reducing the total numbers as shown by the statistical returns. Nor is there any important change shown in the number of swine and horses.

We must here remark that the principal diseases from which our cattle suffer are imported from abroad, and there is a strong feeling prevailing that a sufficient supply of dead meat would be forthcoming if the live importations were discontinued, the imports from America and other countries to wit. These are matters which greatly discourage the home markets, to the disadvantage of the home farmer. The fact of selling cattle alive by the home farmer is a matter requiring his earnest attention, and a weighing apparatus should be available on every farm, for after a little practice the dead weight of all stock for slaughter may be ascertained by comparison with the live weight. A very good general rule is, that every imperial stone of 14 lbs. alive will yield the same number of London market stones of 8 lbs. of dead meat, trifling allowance only being made for difference of condition in the animals. The home farmer when he furnishes animals for consumption at the mansion has a fine opportunity for estimating the difference between live and dead weight.

In dairy produce during the past year it was found that by the sale of milk, the demand for which continues to increase, pays in the sale of it, when near to towns or stations, much better than cheese-making, for the importations from America are very large and of sufficient quality, which is the cause of serious fluctuations in the value of home-made cheese. The home farmer has still the power of furnishing butter of fine quality for the use of the establishment at the mansion. Outside this, however, the sale of butter made is seriously injured by importations from the continental States, from whence enormous supplies arrive in this country of a spurious article called "bosc," a compound of oleomargarine, oil, bullock fat, and some cream to give it a butter taste, and this manufacture is now grown into a great trade, which seriously impedes the sale and profits of home-made butter. One firm alone sends to England from 70 to 90 tons of artificial butter per week from Holland. The values of imported butter in 1881 amount to £8,251,221; for cheese the amount is £4,124,463; for poultry and game, £215,204; for eggs, £1,795,133. The home farmer ought to feel greatly interested in ascertaining the extent of competition with which he has to contend, and his endeavour should be to no longer remain under such a serious reproach as being told these importations may be excluded to a great extent by increased exertions and production at home. The importations of corn and stock are still enormous, but we have not space here to enumerate their value.

We must now refer to the rapid development of improved agricultural machinery, all of which may be termed labour-saving. It is, however, a curious truth when we find that the labour bill of the farm has not decreased with the use of all the improved implements as compared with well-conducted farms and their accounts given twenty-five or thirty years ago. The cause for this, independent of the large amount of capital expended in machinery, its repairs and interest thereon, is said to be the increase of wages, which have risen from 25 to 30 per cent. on manual labour, and the inefficiency of the same amounting to a depreciation of 20 per cent.

Returning again to the effects of the season of 1881 upon the condition of the land and the crops, harvest, &c., we find that the moderation of the rainfall during the year has improved the general condition of the land by raising the temperature of the soil, which had been very low for several previous seasons. Much land has consequently been cleared of couch, and it is noticeable that the meadows and pastures show improved herbage as compared with the previous wet seasons. The harvest, always the most important matter on the home farm, has varied in its results considerably in different districts, the early and forward soils having the advantage over the later climates and cold soils. The cereal produce, as well as pulse crops, have not exceeded the average in the southern and south-eastern counties; but in the western, midland, and northern counties, including Scotland and Ireland, the produce of corn may be stated as a little under the average, but in the fen lands of Lincolnshire and other counties the crops both of corn and pulse have seriously suffered from blight and mildew. In early districts, including the home counties, harvest was commenced the latter part of July with fair prospects, and a considerable breadth of corn was harvested in good condition until the first week in August, when the rainfall commenced, and with only short intervals continued for two months. This not only impeded the stacking of corn in the

forward counties, but in the northern districts delayed the ripening and produced blight. The peculiarity of the harvest was that after the rains commenced there was seldom more than two days of dry weather in succession, in consequence hardly any corn was stacked in a satisfactory condition. It is, however, a fact that thousands of acres of corn in the early districts were seriously damaged when they might have been secured if the question of fitness for stacking was more generally understood, and we have on various occasions endeavoured to show the home farmer that whenever the straw is ripe enough and free from weeds, &c. (as it was last harvest), not to heat in the rick, it should be secured at once from all weathers, to save the straw and grain of the best quality. We heartily wish the home farmer more productive seasons, and, moreover, we anticipate that the new year will inaugurate a cycle of fruitful years.

THE MECCHI FUND.—Under the presidency of Mr. Samuel Morley, M.P. (the Chairman and Treasurer), a meeting of the General Committee of this fund has been held for the purpose of bringing the matter to a close, and of considering the best mode of investing the money collected in the interests of Mrs. Mecchi and her four daughters. Mr. C. B. Shaw, the Honorary Secretary, having stated that the total sum collected, after deducting the cost of advertising, printing, &c., was still about £300 short of the £5000 which the Committee originally proposed to raise, and that a few unpaid and fresh subscriptions were still being received, it was resolved that the fund should be kept open until the beginning of the year, but that the Committee should meet again early in January with the view of winding it up and appointing Trustees. Mr. Morley expressed a hope that in the interim, and especially during this charitable season, the remaining £300 might be secured, and the Honorary Secretary signified his willingness to receive and acknowledge any sums addressed to himself or Mr. Morley, at the offices of the fund, 26, Charles Street, St. James's.

POULTRY AND PIGEONS

POULTRY NOTES.

To judge from a batch of schedules lying before us, the rules of the Poultry Club for the good management of shows are being very generally adopted. We observe that besides the Cambridge Show, which is practically that of the Club, the Ashbourne Show is held under the Club rules, and during the next month or so shows at Hednesford, Southport, Wolverhampton, and Uttoxeter will all be held under the same rules. The Wolverhampton schedule is as usual a very liberal one, and the classification very good.

We have just received a revised list of the Poultry Club, from which we gather that the Club now numbers 205 members and associates.

We are apt to think that neat little poultry houses, in which real care is taken for the comfort of the birds, are only an invention of European fanciers brought about during the last few years. Such is not the case, and nations which we consider somewhat barbarous have evidently long ago cared not only for the utility, but also for the appearance of their poultry houses and yards. At the great Paris Exhibition in 1878 we were much struck with the Japanese farm. Pens of tiny Japanese Bantams, the production of which doubtless occupied some native fancier or succession of fanciers at least as long as that of the Golden or Silver-laced Bantams did Sir John Sebright, occupied the prettiest little bamboo coops and runs; and the beautifully carved gates, surmounted by a pair of the said Bantams, carved in a manner worthy of Gibbons, were evidently intended for the entrance of the poultry establishment of some millionaire. Among the illustrations of last week's *Graphic* we noticed one of a Madagascar village, in which are prominent neat little poultry houses, such as are seen in our best-managed yards, mounted on legs to keep them dry, and with small ladders for the birds to go in and out. We believe that the fowl of the land is the Frizzle. Most excellent mothers, by-the-by, are Frizzled hens, and crossed with Silkies they produce very quaint birds, which we should think the most perfect of all sitters and mothers.

It is just now of the utmost importance to have as many eggs as possible from our best hens; on this depends the success of the early season. In our own case generally we observe the greatest differ-

ence between the laying of those hens which have complete liberty and those which are confined even in the largest yards and warmest situations. This is probably owing in great measure to the lack in confinement of lime and other materials which assist the formation of eggshells. This should be most carefully supplied.

THERE is often a difficulty in preventing Pigeons from nesting at this time of year. Warm winter days make them think of spring; they lay and sit, and some hard late frost kills the young ones. Where the sexes have been separated there is little difficulty. The hens will often lay. They should be allowed to sit awhile on their eggs, or they will lay again too soon, while this will occupy their time till the pairing season comes. When, however, there is but one Pigeon cote it is very difficult to know how to manage valuable birds in the winter. On the whole we think it best to allow them to sit. If the weather keeps mild the squeakers often turn out very strong birds from being so early; if weather turns cold they should be killed when quite small, and probably the parents will then pause to nest again till spring comes.—C.

TROUBLES OF A PIGEON JUDGE DURING JUDGING.

THERE is a rule which we find among others appended to almost all schedules of our shows—viz., "Admission during judging," 2s., 2s. 6d., and so on. Should any member of the numerous committees throughout the country ever act as judges they, I think, will agree with me that this rule ought to be altered in some way, or at all events modified. I do not know how judges in the poultry classes get on, but from experience I can say that it is almost impossible to judge fairly or satisfactorily what I call the finer—certainly the more sensitive—classes, such as Pigeons and Canary birds, while a crowd of outsiders or even fanciers are watching you. The movements of the on-lookers disturb the specimens, put them out of position by exciting or frightening them, and therefore justice can be given neither to the exhibitor nor to the judge. I have acted at a large show where I have had hardly room to move owing to the crowd of visitors admitted; and, again, have been busy at one side of a long table while a crowd of excited fanciers (having paid the high admission fee) were moving about on the other side. No longer ago than last week, while judging and arranging the award for a cup, I felt almost put out by the excitement of a number of fanciers watching and following me about, anxious to ascertain if possible who was to be the winner of the cup. Now, I think the judge should be entirely alone while judging, so that he may familiarise himself with the birds, see all into their natural positions, and thereby have some satisfaction in his work. Then he should have time to walk quietly through the show, so as to alter, if required, any award he may have made by mistake. Should such an arrangement be made by committees, of course greater promptitude would be required in starting the judging, so as not to keep visitors waiting too long for admission. I should be glad if any of our friends would give their views on this subject.—JAMES HUIE.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1881. December.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	25	30.515	36.0	33.9	S.W.	37.0	44.9	28.9	45.5	22.2	—	
Mon.	26	30.589	44.5	44.1	W.	37.1	45.0	35.3	43.9	31.8	—	
Tues.	27	30.623	42.8	42.0	W.	39.0	44.2	42.5	44.5	40.4	—	
Wed.	28	30.470	38.1	33.0	S.W.	39.9	44.2	37.9	43.3	37.8	—	
Thurs.	29	30.256	44.8	42.4	S.W.	40.0	46.5	35.9	48.5	30.3	—	
Friday	30	30.003	43.8	41.8	S.W.	41.3	45.2	41.3	57.5	34.1	—	
Satur.	31	29.923	44.2	42.0	S.	40.2	45.2	38.2	47.8	31.6	—	
		30.346	42.0	40.6		39.1	43.2	37.1	47.3	32.6	—	

REMARKS.

25th.—Fair, overcast.
 26th.—Dull, damp, misty.
 27th.—Damp, overcast, and mild.
 28th.—Mild, hazy, and calm.
 29th.—Calm and dull; bright for a short time about sunset.
 30th.—Fine and bright; warm sun and moonlight evening.
 31st.—Generally fine, but little sun; moonlight evening.

Only one frosty night, and temperature generally very equable. No rain throughout the week. The total rain for the year, 27.92 inches, is, however, quite 10 per cent. above the average.—G. J. SYMONS.



12th	TH	Royal Society at 4.30 P.M.
13th	F	Quekett Club at 8 P.M.
14th	S	
15th	SUN	2ND SUNDAY AFTER EPIPHANY.
16th	M	Royal Geographical Society at 8.30 P.M.
17th	TU	
18th	W	Society of Arts at 8 P.M.

PLANTS FOR ROOMS.

NEVERY year this subject is becoming of more importance to cultivators. In nearly all gardens propagating and growing suitable plants for room decoration receive much attention. Varied circumstances often render this a work of difficulty where a large number of plants are required during several months and house room is limited. To produce in quantity dwarf, sturdy, well-coloured examples low plant houses are essential.

With houses properly constructed and heat at command it is easy to raise and maintain a good stock of suitable fine-foliage plants for rooms. These are much more easily produced than a large supply of flowering plants for the same purpose. The lasting properties of a plant in the dwelling-house are often not of the first importance. I do not wish to infer it is not the case in some instances. The first and most important consideration is whether the plants employed give satisfaction to the owners. Taste varies so much, that what one appreciates another will not. This frequently necessitates the employment of plants that do not last long, and at first it was a source of trouble to me to grow good plants to be rendered unsightly in a few days. Experience has, however, taught me to think differently. When foliage plants are almost totally excluded and flowering plants only may be used, and the majority of which must have fragrant flowers, the work of maintaining a supply is often difficult; still the difficulty can be overcome.

There are many good suitable fine-foliage plants besides these given in the list on page 512 last volume, and some of them are even preferable. Amongst *Dracænas* *D. Frederici* is one of the finest for indoor decoration. It only attains a medium size, and colours better than either *D. Cooperi*, *D. terminalis*, or any other variety I know, in a small state. *D. terminalis alba* is the best of the variegated forms, being in habit much like the old *D. terminalis*, and it forms a good companion to that useful variety. It colours better and earlier, and is altogether more useful than *D. Reginae*. *D. Renardiae* is of sturdy habit, and its foliage is inclined to droop. A stock of this variety can be raised quickly; it is a good grower, and can be coloured well in 6-inch pots. *D. Scottiae*, of slender habit, is free in growth; it colours well, and is suitable for decoration in small pots. When well grown this is a lovely *Dracæna*. The colour of the leaves is a pleasing green edged with crimson, while the young leaves are freely coloured with pink and creamy white. *D. hybrida* is a free and beautiful variety, colouring well when comparatively small; its habit is compact. *D. metallica* is a valuable dark-leaved kind with

broad drooping foliage, and looks more ornamental than the useful old *D. ferrea*.

D. superba will, no doubt, when it becomes cheaper and better known, be highly appreciated for table decoration. It is the most slender and graceful variety I know. The leaves are from 1 foot to 18 inches long, and about 1 inch wide. The colour is a dark bronze green, margined and striped with bright crimson. This variety colours well in a very small state; in fact, I have seen handsomely coloured plants in 4-inch pots.

Amongst slender green kinds none surpasses the old *D. congesta* for general purposes. It endures well in rooms, and grows sturdily with any ordinary cool-house treatment. A little heat should be given when propagating and until the young plants have fairly started.

Crotons are useful plants, and the majority of them remain attractive for a long time in rooms; in fact, I think they will stand more rough treatment than *Dracænas*. The leaves of the latter, when highly coloured, are soon injured; but this is not the case with *Crotons*, for the better they are coloured the more beautiful they appear both by day and gaslight, and they last equally well. *C. Queen Victoria* is one of the most useful for room decoration. *C. Hawkeri* should be included in every list, however limited, as it is by gaslight perhaps the most conspicuous of all *Crotons*. The green and light yellow variegation of its leaves contrast so well, and the transparency of its variegation is seen to the greatest advantage under artificial light. It is a good grower, of a free branching habit, and will no doubt become our most popular *Croton* for decoration at night. *C. Hanburyanus* is another striking variety with noble foliage; its colouring appears best towards autumn. *C. Evansianus* is useful, but does not colour so well in a small state as many others. *C. Weismanni* and *C. majesticus* are too well known to need recommending. *C. interruptus aureus*, a new fine-leaved variety certificated in 1878, assumes a fine pyramidal habit without pinching; it is light and elegant, colouring well when very small. I think when well known this variety will surpass *C. angustifolius* for table decoration.

A long list of suitable foliage plants might be added from amongst *Marantas*, *Abutilons*, *Dieffenbachias*, and others that are readily propagated, and they prove useful for change and variety.

Flowering plants are the chief features here, and *Eucharis amazonica* is a valuable plant when grown in 5 or 6-inch pots, according to the size of the vases to be filled. They can be flowered in the first-named size, two good bulbs only being placed in a pot. In rooms the flowers continue fresh as long as they do in the house in which they are grown without any injury to the plants. With a good stock flowers can be had nearly all the year round. Small bushy plants of *Gardenias* are appreciated; the flowers do not last long, but that is of but little moment here. *Heliotropes* are favourites, and are grown in 5 and 6-inch pots, each plant carrying from six to twelve trusses of bloom. *Daphne indica rubra*, *Mignonette* as standards—in the same size pots as the *Heliotrope*—*Hyacinths*, *Narcissus*, *Lily of the Valley*, *Spiræas*, forced *Pinks*, and *Cyclamens*, are all largely employed. Greenhouse *Rhododendrons* are much admired. Of these *Princess Alice* is the favourite, with its large white fragrant flowers, and the growth being compact, suitable plants can be had in 6-inch pots. Small plants of the *Ghent*, the *mollis* type, and *Indian Azaleas*, also *Lilac Charles X.*, are all employed here. *Roses* are useful

when they can be produced. The Little White Pet is very pretty and well adapted for decoration, so are some of Bennett's Hybrid Teas. Although they are not highly valued by exhibitors, they are free and useful, and La France is equally so.

Orchids are invaluable for indoor decoration, and many of them last a long time if placed in positions sheltered from draughts. *Zygopetalum Maekayi*, when grown in suitable pots, is a grand winter-flowering sweet-scented species. *Z. maxillare* is equally useful. Small plants of *Dendrobium nobile* are invaluable. *Cœlogync cristata*, *Maxillaria pieta*, *Odontoglossum Alexandræ*, *O. Pescatorei*, *O. cirrhosum*, and *Lycaste Skinneri* are a few of the cheap varieties that are amongst our most useful flowering plants for the purpose in question.

Many other plants might be added which are employed here as they come into flower in their respective seasons, preference always being given to those plants that produce fragrant flowers. I do not like to see the same plants in rooms day after day until rendered useless. When changed frequently, which should be the case, there is always something fresh to admire, and the plants are not spoiled. Ladies soon grow tired of seeing the same plants or class of plants occupying the same position for an indefinite period. When large numbers of plants are employed for indoor decoration it is difficult to have *Selaginella* or Moss established and growing in the pots of all of them. We prepare hundreds of shallow pans about an inch deep of *Selaginella*. It grows well in any shady position—under Vines or Peach trees. The Moss is removed from the pans and placed on the pots when they are taken into the house. The Moss in many instances becomes established, grows freely, and always imparts a neat and pleasing appearance to plants in rooms.—W. BARDNEY.

POTATOES OLD AND NEW.

I READ "OLD TATER'S" remarks on page 468 of your last volume with much pleasure, and, whether heretical or not, must subscribe to the truth of much that he advances. I, too, have grown many varieties, and, all being well, shall continue to try a few annually, hoping to select some that are superior to the older varieties. Ours is a rather strong heavy soil, and by no means what I should term suitable for Potatoes, more especially those varieties possessing a comparatively weak constitution. At present my list of suitable varieties from a non-exhibiting point of view is a small one. What we require are early maturing, productive, and good disease-resisting sorts. It is the want of the latter character that disqualifies so many, several of the newer varieties being all that can be desired in other respects.

Commencing with old favourites—Veitch's Improved Ashleaf or Mona's Pride, cropped heavily, was only slightly diseased and early in the season, was and still is of excellent quality. It is much liked for growing in frames. Old Ashleaf, Myatt's and Rivers' Royal Ashleaf, were badly diseased, and for the future will not be grown. Ashtop Fluke produced a fair crop of good quality, and a few will be grown to succeed Veitch's. To follow this I grew Lady Paget alluded to by "OLD TATER." A few years since Mr. Pragnell kindly sent me a few tubers of this variety, and so well did it succeed that I have brought it here, discarding the old Lapstone. It again proved one of the heaviest croppers we have, in this respect only differing from, or being superior to, the handsome eatable Lapstone. Snowflake was as productive and handsome as could be wished, but was, I am sorry to say, badly diseased and of poor quality. Schoolmaster proved better than I have previously had it, and will be grown in great quantity next season. The crop was heavy, tubers of good shape but slightly diseased, and of the best quality. Magnum Bonum and Scotch Champion in the open field were equally productive and disease-resisting, but differ materially in regard to quality. The former is in my opinion in point of habit and quality of tubers decidedly preferable and easily cooked; but the latter is preferred by my employers. Why I fail to understand, as the "tatics" have either a "stone in the heart of them," or in the case of the largest tubers a vacuum more objectionable than a "stone." They require careful boiling, or the best portion is spoilt before the "stone" is softened. Probably Scotch Champion repays good garden culture, and, if good scavengers, are likewise great impoverishers. Ask our market growers, and they will the following season point out to a row where the Scotch Champion grew.

Of the new or comparatively new varieties I find Suttons' Surprise, an early round variety, worthy of a second trial, especially

for forcing, as it makes but little haulm, is moderately productive and of good quality. Carters' New First Crop Ashleaf will be forced this season, and I am under the impression it will form a formidable rival to Veitch's Improved. Two at least of Fenn's new seedlings received from Messrs. Suttons, by whom they are to be distributed, bid fair to become standard varieties, but as they were grown under numbers only it would be useless to discuss them. Cleopatra, raised by Mr. Collins and being distributed by Messrs. Carter & Co., will also, I believe, become popular both for ordinary and exhibition purposes. With me on poor soil it made but little haulm, and taking this into consideration the crop was surprisingly heavy, the tubers being large and handsome.

Triumph, a now well-known American variety, proved profitable and will be grown again. I consider this a poor man's Potato, as it makes but little haulm, being therefore adapted for their close-planting system; it also produces a heavy crop of large tubers of good shape and quality. In addition it matures early, and thereby often escapes disease. Beauty of Kent failed this season, and I have done with it; neither will Porter's Excelsior, St. Patrick, Manhattan, Trophy, Brownell's Superior, Grampian, nor any of the Early Rose type be grown, simply because they are either of poor quality or much liable to disease. Woodstock Kidney yielded a heavy crop of really fine tubers, but more than half of the crop was diseased, and the same remarks apply to Carters' Holborn Favourite. From a partiality, however, for handsome Potatoes I shall still grow a few of each.—W. IGGULDEN, *Marston*.

JAPANESE CHRYSANTHEMUMS.

WITH Mr. Moorman and Mr. Etherington I agree that a new classification is desirable for the now numerous and handsome varieties of the above, but it is necessary that such classification should rest, if it be possible, on sound structural ground and not upon mere external appearances. The three sections as proposed by Mr. W. Etherington neither allows of scope for future improvement, nor does it comprehend all the structural differences as displayed by the kinds as already distributed. A noted raiser sent me some very fine seedling blooms this season, and much as I had known and expected of the Japanese Chrysanthemums I never even dreamed that such changes could so quickly and surely be wrought in this beautiful class. Anemone-flowered Japanese as large as tea-saucers, and of all colours from white to crimson scarlet, and purple through all the shades of sulphur, primrose, buff, yellow, and red, are surely enough to make a grower's "mouth water," as the popular saying goes. Several of my friends are taking Mr. Forsyth's advice given as long ago as 1872, and are saving seed from good varieties of large-flowered and Japanese varieties. Both Mr. W. Thompson of Ipswich and Mr. Benary of Erfurt offer Chrysanthemum seed of the various sections for sale. Florists are a little too apt to have set ideas, and quite right they are in adhering to them (from their own standpoint), but what I and many other lovers of the Chrysanthemum desire are some of the lovely single-flowered seedlings which the florist persistently throws away should they appear among his seedling plants. Now that single Dablias and Pyrethrums of the *P. roseum* section are so popular for their brilliant colours, is it not desirable that some of us should have single-flowered Chrysanthemums of daisy-like form and good distinct colours, as brilliant as it may be possible for us to obtain?

I submit the following as an example of the classification required in the Japanese section—

SECTION I.

Florets strap-shaped for more than half their entire length.

a.—Florets erect, displaying almost as much of the colouring of the back part as of the front. Ethel, erecta superba, Oracle, Peter the Great, &c.

b.—Florets reflexed, showing front colouring most. Elaine, Beauté du Nord, &c.

c.—Florets twisted, curled, or variously contrasted, showing both back and front colouring of the florets in a more or less irregular manner. Cossack, Gold Thread, Tokio.

SECTION II.

Florets quilled or tubular for more than half their entire length.

a.—Florets curving upwards or erect. Soliel Levant, Red Dragon, Meg Mer-rilees.

b.—Florets reflexed.

SECTION III.

Florets of the disc tubular, densely packed in a raised cushion-like mass. Florets of the ray flat, slightly recurved. Popularly known as Japanese Anemone-flowered. Garnet and one or two others.

—DUBLINENSIS.

MIGRATORY BIRDS.—This is a subject (*vide* page 581) upon which I am sure many gardeners could give us much valuable information. In Kent, it is commonly believed that some of the swallows always remain with us, although I did not myself see them. I have the testimony of credible persons that several were about near Gravesend during November. Like Mr. Hiam, we had, a few weeks ago, a strange if not a migrating visitor—namely, a raven, which passed from roof to roof, causing some wonderment, for it is not a wild bird

noticed about Kent now. I have observed this autumn fewer flocks of chaffinches than usual.—J. R. S. C.

RAISING VINES FROM EYES.

YOUNG Vines may be raised in this way with ease and certainty. Those who annually propagate some will have the matter under consideration or in practice now, and others who wish to try it this spring for the first time must now think of beginning. Good wood for propagating from is of much importance. Nurserymen who have every means for simplifying propagation are well aware of this, and others with more limited means and experiences should bear it in mind.

By good wood I do not mean that this must be the thickest, as very often this is the last to start into growth, and not unfrequently fails. Wood of medium strength is the kind we prefer, and the more thoroughly it is ripened the better will be the growth. Vines raised from well-ripened wood will show the value of it all their first season, especially if they can be contrasted with some which have been had from immature growths. It is from the ends of young rods that we obtain our Vine eyes; and, failing these, the side shoots which have been well exposed to the sun all the past summer are taken.

At first the shoots are cut off their full length and generally inserted in soil in the open air until they are wanted. This is a good plan, as the wood soon dries injuriously if left out of the soil. In preparing the eyes a sharp knife is used. Above each eye the wood is cut straight through, and from 2 to 3 inches further down below the bud it is cut through in a slanting direction. As the required number of each kind are prepared they should be placed closely together in pots or boxes amongst damp sand or soil. In this they are allowed to remain for some weeks in a cool shed, and during this time they are forming a callus round the slanting end, which will produce roots quickly in heat. Before subjecting them to this we take them all out of the first material and pot them singly in 3-inch pots, employing a compost of loam and half-decayed manure—about one part of the latter to three of the former. They should then be plunged in a bottom heat of 80°, and if the top heat can be kept about 65° to 70° they will root quickly and soon form good shoots.

All eyes which are to be rooted this spring should be prepared at once, and they must be placed in heat early in February; then by the end of March they will have growth a foot or more in length, and when they are this size it is a good time to transfer them to 6-inch pots. Similar compost to that used before should be employed, and the pots must be well drained. After being transferred to the larger-sized pots a little bottom heat starts them into growth; but after a good beginning has been made the bottom heat should be reduced, or they may be taken from it altogether and be grown as robust as possible. Until spring is well advanced they must be kept in a moist warm house or pit, but about midsummer and onwards they will only need greenhouse treatment.

Sometimes they may be raised to plant out when they have canes 3 feet long, which would be in May, and then the best can be selected for the purpose; and when more have been rooted than can be grown with advantage, those with the most healthy young growths and roots must be retained. A score of good Vines will be of more service than fifty of inferior quality.—
A KITCHEN GARDENER.

REMOVAL OR NON-REMOVAL OF POTATO SPROUTS.

I HAVE lately been examining early Potatoes kept in a dry loft, for the purpose of placing some temporarily in boxes for sprouting. In doing this a matter occurred to me that I should, in common with others, like to have fuller information upon from any reader who may have tried the experiment; but before referring to it I must note the relative progress, under similar circumstances, made by a few early kinds. The varieties were separate, fully exposed to light and air almost every day—we have had but two frosty days so far (3rd January); and with a pretty constant temperature, veering from 45° to 50°. Old Ashleaf Kidney and its varieties, except where very fully exposed, had made in many instances 2 inches of sprout growth; Early Rose not a fourth of an inch, and Beauty of Hebron somewhat less. Snowflake was barely moving, except a few underneath; and Flounders had in most instances nearly half an inch of growth. Later varieties in proportion. From this I would conclude under merely natural influences, and under the circumstances, and with the varieties mentioned, that Ashleaf Kidney is one of the earliest, if not the very earliest Potato. But my present object is to ascertain more fully whether sprouts—say

when they exceed a quarter of an inch long—should advisedly be removed or retained? And secondly, if removed, can that eye be relied on, and to what extent? And if not removed, how will the retention affect the crop as to time of maturity and produce?—
W. J. M., *Clonmel*.

CHOICE IRIDS.

VIEUSSEUXIAS.

THOUGH not a large genus, this includes among the nine or ten known species several of great beauty. Their attractions chiefly consist in the brilliancy of the tints, distinguishing the neatly formed flowers; and though these are of moderate size, like most of their allies somewhat fugitive, they deserve to rank amongst the most beautiful. By old writers most of the plants now included in this genus were considered as Irises. Some have also been referred to the genus *Moræa*, but they were separated by Decandolle and ranked as a genus; and concerning this it is only to be



Fig. 5.—*Vieuxseuxia glaucopsis*.

regretted that he had not chosen a more euphonious name, and there is certainly some excuse if the advocates of English plant names prefer the simple but expressive popular designation "Peacock Irises." The principal botanical characters which separate the *Vieuxseuxias* from the *Irises* and *Moræas* are the monadelphous stamens and the relatively small inner segments of the perianth. The latter gives a distinct appearance to the flowers, as they only seem to have three ovate petals, the other divisions in most cases being very diminutive.

The cultural requirements of these plants are not elaborate. Like the *Moræas*, they can be grown either in pots or out of doors in a warm well-drained border, but in the majority of situations the former method will be found the most advantageous. Light sandy soil, with good drainage and abundant supplies of water

while the plants are growing, are the chief points demanding attention.

VIEUSSEUXIA GLAUCOPIS.—The woodcut (fig. 5) represents one of the best known and most abundant species—namely, the common Peacock Iris, a variable but beautiful form first introduced from the Cape of Good Hope about ninety years ago. It usually attains the height of 18 inches, producing its flowers in spring—April or May. The larger ovate or rounded segments of the perianth are pure white, having near the base in the centre a circular spot of rich deep blue, the resulting contrast being most striking. This form is more generally planted out than most of the others; but unless the soil is naturally light and thoroughly drained it is necessary to prepare a position. A compost of peat, leaf soil, and sand is suitable, or if very light turfy loam is obtainable it may be substituted for the peat.

V. PAVONIA.—A pretty species, but less attractive than *V. glaucopis*. It is the Peacock Iris of Linnæus, and one of the oldest known in this country, having appeared about the same time as the preceding. The perianth divisions are rounded, and of a deep orange hue, with a darker crescent near the base and a bright rose central blotch. It is a native of the Cape, and flowers in May and June.

V. TRIPETALOIDES.—A rare species both in its native habitat and in cultivation, but distinct in form, though less showy than some of its relatives. The lower portion or claw of the floral segments is very narrow, the blade or expanded portion being oval in outline, and pale blue with a yellow blotch at the base. The narrow claw gives the flower a loose appearance, quite different from the other species. It is of slender habit and suggestive of some of the *Xiphions*. It flowers in spring, and was brought from the Cape to England about the commencement of the present century.

V. TRICUSPIS.—This is one of the least attractive of the family, but is very free in growth and production of flowers. These are small, of dull white colour with a purplish blotch in the centre of the segments, and they are produced in May and June. It was first discovered by Thunberg at the Cape, and was introduced thence to Kew by Masson in 1776. A yellow variety of this, by some named *V. tricuspis lutea*, and by others *V. Bellendeni*, was obtained from the Cape twenty years later. The floral segments are small, rounded, yellow, with a few dark spots near the base.

V. VILLOSA.—A handsome companion for *V. glaucopis*, but even surpassing that in beauty. Fig. 6 (page 27), shows a flower of the natural size, and well represents the form. The outer perianth segments are broadly oval, of a rich purple tint, with a central crescent of deep blue and a blotch of bright yellow at the base. The larger size of the flowers and the broader leaves render it one of the finest in the genus. It is a Cape species introduced nearly a hundred years since, and it succeeds well outside in suitable positions similar to that noted as required by *V. glaucopis*. The two forms figured are those especially worth cultivation, and if a third is needed, *V. Pavonia* should be selected.—L. CASTLE.

THEORIES IN VINE CULTURE.

I AM disappointed with Mr. Taylor's answer to my last, astonished to see him so ready to evade the responsibility of his assertions instead of proving them; certainly not pleased with him for so repeatedly attributing ideas to me I never dreamed of, and confounding statements in no way connected in order to make me, if possible, inconsistent. I will not enter further into a discussion which has degenerated so much, except in defence of myself, and will only refer to one or two instances to show that the discussion has become unfair. I cannot think Mr. Taylor has read what I have written attentively enough to understand me, for I know enough of him to believe that he would not misrepresent anyone. However, in this case he has done so grievously, which he will see if he again goes carefully over what has been written by me. While doing me injustice, he also wrongs himself a great deal more. Instead of giving your readers the information asked, he, seeing he has gone much too far, restates his case in such a way that amounts to owning himself wrong.

For instance: He now says that "gross top growth generally [why generally?] produces gross roots;" but this is different from saying particular modes of pinching tops alter the roots from fleshy to fibry, and this much he said before. He now says that "roots do correspond to the top growth;" but who, except Mr. Taylor, ever said anything else? He now asks if any man denies "that every leaf which has a particle of green in it assists in the manufacturing of supplies." There may be one such, though we never heard of one; but this is not giving us proof that crowded foliage manufactures food for the special purpose of

making roots of an objectionable character. The truth is, there can be no evidence that will prove such a thing, hence Mr. Taylor is frightened at his own temerity and quietly retires from an untenable position. We do not wonder he has not time to wait on the science that is to prove him right, for it never will come.

Mr. Taylor wishes me to reconcile two statements which he conceives to be inconsistent. As the two have nothing in common and are on quite different subjects, I despair of being able to set Mr. Taylor right when he really could manage, under the circumstances to go wrong. If he again reads the paper he will find that to be so.

I am sorry to take up your space on what is so far from the main issue, and this is all I have to say on this part of the subject, as I cannot go a-hunting with Mr. Taylor among overfed people, surgeons, barbers, and so forth.—SINGLE-HANDED.

WHILE I agree that the further discussion of this subject had better be left to Mr. Taylor and "SINGLE-HANDED," I cannot help thinking, as others must think, that a practice which requires such a long and laboured defence from Mr. Bardney must be weak somewhere. When your correspondent has grown Vines that have received such striking testimony of their excellence as those have at Longleat, he will have better grounds for denouncing a system that has proved its superiority; and before he has the satisfaction of receiving high awards for Grapes at the best competitive shows of the Royal Horticultural and Royal Botanic Societies, he will either have to modify his "thicket" and hacking system that he has advocated, or his Vines will soon afterwards need renovating. It was not by adopting a wasteful and exhaustive system that the cultivator who has won the greatest number of medals for Grapes in Europe grew the Vines that produced the fruit, and which yet after nearly half a century of cropping afford fruit which possibly equals that from first pampered and then mutilated Vines that are not yet out of their teens. With the remark that Mr. Bardney has not adduced such good evidence of Grape culture by the extension or "thicket" system as his own Vines in pots have afforded on the moderate restrictive method, and under the conviction that the method of culture described by Mr. Iggulden is sound in principle, I shall now leave this subject, as word-chopping and straw-catching are not quite congenial to me, nor, I think, particularly instructive to others.—AN OLD GROWER.

AFTER carefully reading all Mr. Bardney and his supporter, "SINGLE-HANDED," has written on this subject, I am inclined to the opinion the more they advance the more the ground is slipping from under the former's feet. For instance, How much does the latest instance Mr. Bardney quotes support his theory? The Madresfield Court Vine mentioned had plenty of space in which to grow, presumably both above and below ground, and all the growth was not cut closely back; on the contrary, each of the five canes obtained were left 3 feet long. This is far removed from the thicket system before recommended by your correspondent. According to him the distance apart at which permanent Vines are generally planted is 3 feet, "with temporary Vines between them." As he gives this distance, and seems surprised to find I allow another foot without supernumeraries between, probably it is the same as his Vines receive. Now, unless restriction is practised, and rather closely too, the lateral growth of that part of the canes to be eventually retained would be most injuriously thick, the foliage consequently being poor in quality. In spite of this limited space, after a time he contrives to take up as many canes as can be laid in from the lower as well as the upper portion of the main stems, and these are encouraged to grow all over the roof and down the back walls. That, however, is during the second season, as during the first season, after being stopped twice, they are "allowed to grow as much as they can . . . the laterals only being pinched up to the place where the leader was stopped the second time." Then he secured a thicket of growth at the top of the house; and though he wisely refrains from stating as much, there is every appearance of the same results being produced the second season. Now I ask "SINGLE-HANDED," Are not leaves formed under such circumstances "poor, thin, and overcrowded," therefore "papery?" and am I not justified in terming the fully developed leaves I obtain by thoughtful restriction "leathery?" If Mr. Bardney fully appreciates "the advantage of sturdy foliage thinly enough placed to allow of the sun and air acting their part," to all appearance he certainly makes a poor attempt to secure it. I invite my readers to contrast his crowded Vines with Vines grown as I have previously described. According to his own showing I secure abundance of leaf growth, and that, I may add, of a most serviceable descrip-

tion. If this is capable of swelling the stems and forming roots in sufficient quantities to meet all the requirements of the Vines at the commencement of the next season, why grow a houseful of growth only to materially exhaust the borders and then be cut away again? Surely the houses and even the borders can be turned to a better purpose for a time.

It must be remembered or be understood (this for new readers) we are holding an argument upon the relative merits of the different systems adopted with *young Vines*, moderate restriction being opposed to unrestricted.—W. IGGULDEN.

[As there appears to be a general desire that the discussion of this subject should as much as possible be left in the hands of Mr. Taylor and "SINGLE-HANDED" at present, we reproduce concisely the points at issue, and which we fear a number of side issues more or less relevant have somewhat obscured. On page 383, October 27th, 1881, Mr. Iggulden based an argument on the following example:—

"An expensive border is made. Vines are planted during the early part of the year and encouraged to grow as freely as possible, even to forming a thicket all over the house, including the back walls. This is done with the idea of filling the border with roots in proportion to the top growth. But what is the use of encouraging all this growth of roots—roots of the grossest kind—which quickly rob the borders of their fertility, when the whole, or nearly the whole, of the top growth at pruning time is cut away?"

That is Mr. Iggulden's case. He objects first to an unrestricted and, as he presumes, needlessly luxuriant growth the first season, followed by very close pruning. In reply to this Mr. Bardney says on page 420, November 10th, 1881:—

"I stop the young Vines when about 9 inches high until they make roots. They are then allowed to grow as much and as fast as they can, even if they resemble a thicket at the top of the house, the laterals only being pinched up to the place where the leader was stopped the second time."

That is Mr. Bardney's case, and he emphasises it on page 499, December 1st, 1881, by citing the following from Mr. William Thomson's work on the Vine:—

"Young Vines not thicker than a quill were planted. All the buds were allowed to grow, producing in some instances ten rods to one Vine, all of which during the season ran to the top of the house and partly down the back wall, a distance of 30 feet. When they were cut down the house was a perfect thicket of wood. The Vines were cut down to within a foot of the front sashes, and two rods were trained from each the following season for fruiting."

Thus the matter stands. Mr. Taylor supported the former theory, and "SINGLE-HANDED" the latter. They can both, no doubt, advance reasons for their practice that will be instructive to others. Let them discuss the question on its merits without prejudice and reference to what has been said in the past and somewhat mixed controversy, Mr. Taylor to open the question from his point of view.—ED.]

CHRYSANTHEMUMS AS CUT FLOWERS.

WHILE cutting some Chrysanthemum blooms recently, the thought occurred to me that a note on the varieties which are yielding flowers at this season might be useful. The following gave their first flowers—that is, from the end of the leading shoots—Princess Teck and Mr. Gladstone, both incurved; Fleur de Marie, Miss Margaret, and Empress, Anemone-flowered; Cry Kang, Purple Prince, Japanese, and Julie Lagravère, reflexed. The following yielded a second crop of flowers from side shoots—viz., Lady Slade, Venus, Mrs. Shipman, and General Bainbridge, large-flowered; Criterion, To Kio, Peter the Great, Elaine, Marie Lemoine, Fair Maid of Guernsey, and Bouquet Fait, Japanese; and Beauté du Nord, reflexed; George Sand, Marginatum, and Princess Louise, Anemone-flowered; Baronne du Prailly, Red Dragon, and some of Cry Kang, Japanese, have yet unopened. Of Pompons Golden Cedo Nulli, Antonius, President, Perle, Madame Montels, and Mustapha afforded flowers for cutting. Four hundred fresh flowers have been gathered this week, 1200 from Christmas week, and we have still many hundreds to gather as required.

The Chrysanthemum has occupied a very prominent place for several years in the houses here, both as a decorative plant and as a producer of flowers for cutting, nor has it ever been known to fail to respond to our simple treatment. Though I should not recommend so many varieties as we have here to gardeners whose sole aim is to procure flowers for cutting, as I have been placed in this position, that variety and large blooms up to the florist standard were as much requisite as the flowers themselves for furnishing purposes. However, were cut flowers alone a requisite and plenty of them, the varieties I should select would be

these—namely, Mrs. George Rundle, Mr. George Glenny, Elaine, Beauté du Nord, Julie Lagravère, Peter the Great, James Salter, and probably Miss Margaret for very late blooms. If purple flowers were in request I would add Prince of Wales and Purple Prince.

With the exception of the cluster of buds at the ends of the main shoots of some of the varieties, I would allow the plants to bear as many flowers as they could. Rich feeding would bring the flowers to a good size. If small flowers are not objected to, some of the Anemone Pompons might be grown: these are very pretty. Golden Cedo Nulli in its way is quite as beautiful as Mr. G. Glenny. Madame Montels is a lovely flower, and Antonius is also worth growing for cut flowers.

The cuttings may be struck at any time up to May, but now is the time to insert them if the largest possible quantity of flowers

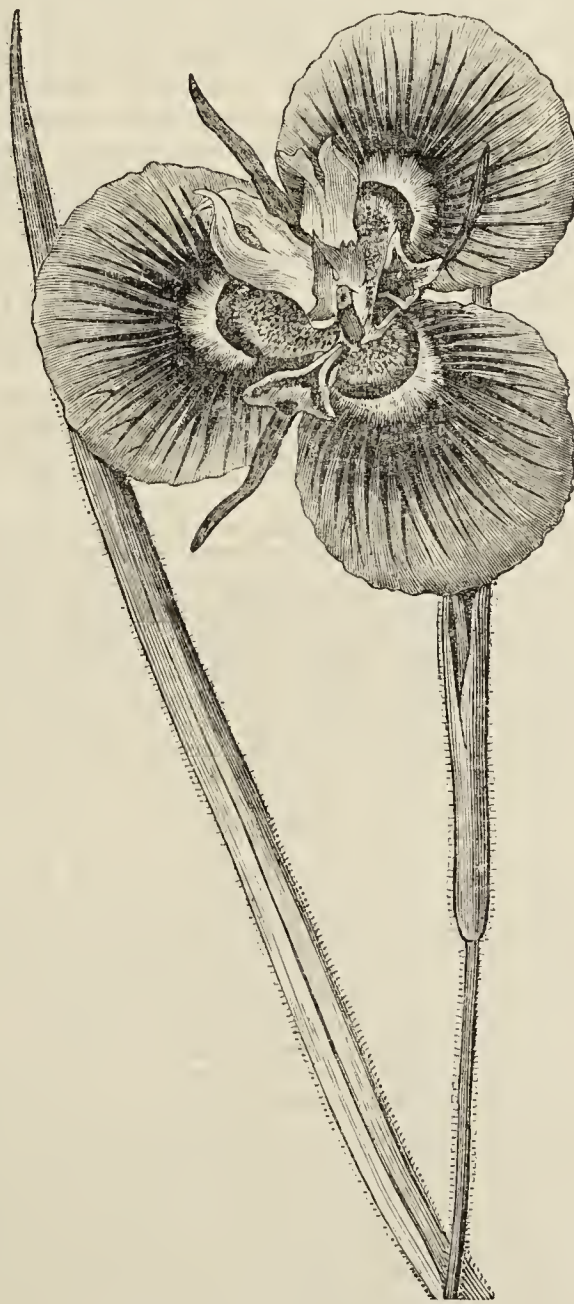


Fig. 6.—*Viussucxia villosa*. (See page 26.)

is wanted. I employ very little heat, use short healthy cuttings, and when rooted grow the plants in a cool and airy position. I cannot obtain too strong soil for them, nor press it too firmly into the pots, nor injure the plants with liquid manure, when once the roots have a firm hold in the soil.—A NOR'-EASTER.

WIRE NETTING FOR PEAS.—Some time ago a correspondent sought information on this subject. In May, 1879, I purchased of Messrs. J. B. Brown & Co. 50 yds. 4-inch-mesh 18w.g. galvanised wire netting, 3 feet high, for 12s. 6d., for supporting Peas in lieu of sticks. The netting is supported with wood sticks 4 feet long, 1½ by 1¼ inch, the foot tapered, charred in the fire, and dipped into coal tar while hot, placed about 4 feet apart. The wood sticks and the wire netting are now nearly as good as new. I would recommend a stronger wire, say 16w.g., and a larger mesh than 2-inch, as this is too small for passing the hand through for gathering the inside Peas. I used two rows of netting—i.e., one row on each side of the Peas, the same as using sticks. I like the netting quite as well as sticks. We have

less to pack together through the winter, and have not to look after new sticks in the spring of the year. The Peas take to the netting very well, but it is not so good in windy weather, as I fancy the wind blowing the stems about cause them to cut on the thin wire.—W. S., *Isle of Man*.

MAYFIELD, FALKIRK.

RECENTLY Mr. Burbidge, than whom there is no better judge, when writing about Orchids said, that of all the collections he had seen, the original one at Mayfield, so far as culture was concerned, surpassed them all. Another, equally qualified, once in our hearing pronounced the same collection the finest in Europe. This was proved when they were sold at Stevens's rooms seven years ago, for the prices have never been reached by any others. When it became known throughout the country that that famous collection was to be dispersed universal regret was experienced; for it was felt, more particularly in Scotland, that "take it all in all, we ne'er shall look upon its like again." Possibly Mr. Russell, the owner, thought otherwise, for no sooner was the original collection dispersed than he again commenced the formation of an even more extensive and representative one. Again Mayfield has renewed its fame as one of the most famous of Orchid-growing places, and again the collection will, so we hear, be sold by auction. As was noticed in these columns lately, the owner of this fine place recently died, and his successors have determined to part with all the more valuable plants, including not only the whole of the indoor, but most of the outdoor plants as well. This we doubly regret, for nowhere, at least in the midland counties of Scotland, is there another garden so richly stocked with trees, shrubs, and other plants.

We have often visited Mayfield and taken notes, but often as our visits were, we always saw something new or worth noting, as must always be the case whenever good collections of plants are so well managed as those at Mayfield have been under the talented Mr. Sorely.

In a recent visit our attention was called first to the Camellia house. Until a year or two ago this house was filled with the noblest Tree Ferns and Palms, many of them grand specimens. On their dispersal the house was filled with Camellias from an older house which was too small for the advancing specimens. So large were some of these that no little ingenuity had to be exercised in lifting and conveying them in safety from one house to the other. The skill which has accomplished so much besides overcame the difficulties in the way, and now the huge bushes are in the most robust health and bearing loads of their indispensable flowers. At the time of our visit only a few were to be seen, for quantities are daily cut and placed in wreaths on the grave of their late owner.

While among them we took the names of a few of the best. Mrs. A. Wilder seems to be a collection in itself, for side by side with blooms of snowy whiteness could be seen others of different shades of salmon and carnation. Among the older and generally valued varieties Countess Lavinia Maggii may be named, along with Mathiona alba and M. Rosea, Roi Leopoldi and Reine des Fleurs. Candidissima is perhaps the finest of whites, and Pistonii and Rubens are specially good in a half-opened state for buttonholes. Among newer kinds we noticed Mrs. A. M. Hovey and C. M. Hovey.

In the next house which we entered were a great number of Orchids not long imported, but breaking finely. In this house were also many forms of *Lycaste Skinnerii*, including all the varieties named in Mr. Williams's Manual. The *Odontoglossum* house next claims attention. It is simply an old wooden shed with a glass roof, and was once an old greenhouse for keeping bedding plants over winter. This does not prevent the *Odontoglossums* growing vigorously, although it cost much trouble a year ago to keep the temperature a degree or two above freezing. Not often, if ever, can plants of the same age be seen with such pseudo-bulbs and such spikes. Though our time was very limited we counted the flowers on one plant that three years ago was a solitary imported pseudo-bulb. The number was fifty, borne on three spikes. The kind was *O. Alexandræ*. Many other grand varieties were flowering or showing two or even three spikes from one pseudo-bulb of extraordinary vigour. To name all worth naming would tire your readers and produce a catalogue, which we do not intend doing; but the following were so fine that we cannot refrain from naming them. *O. Andersonianum*, *O. nebulosum* (very large pseudo-bulb), *O. triumphans* and *t. alba*, *O. Pescatorei*, *O. Rossii majus*, *O. violacea*, and *Sophrontis grandiflora*. *Masdevallias* were also grand.

In the vestibule of the two *Cattleya* houses very noticeable are the tubs of *Cœlogyne cristata*. Plants like these we have never seen, and they could not be surpassed; more than a yard in diameter and composed of numberless pseudo-bulbs as large as ducks' eggs, such plants produce an enormous number of glorious blooms in early spring. Here also are plants of *Dendrobium thyrsiflorum* and *D. Walkerianum*, with stems between 2 and 3 feet long and as stout as an ordinary ruler. We noticed also *Odontoglossum nævium majus* in very fine condition. Here also are to be seen specimens of *Cypripedium caudatum* in magnificent condition.

Among the *Cattleyas* we can only select a few from the great

numbers which meet the view. Those we noted are *Cattleya Warneri* in fine health; *C. Warcewiczii*, *C. delicata superba*, very fine; *C. Morgani*; *C. exoniensis*, one of the finest of the varieties; *C. Downiana*; *C. gigas*, and a better variety of *C. Warneri* than that figured in Warner's magnificent work. Here also are many varieties of *C. Trianae*, including a fine piece of the rare and original *C. T. Russelliana*. In the *Cattleya* house we also noticed an extraordinary healthy plant of *Cœlogyne cristata Lemoniana*, which has the curious and valuable character of flowering from the top of the pseudo-bulbs in autumn, and in the ordinary way in spring. Mr. Sorely places much value on this plant.

Cymbidium Lowianum had thirty blooms on a spike, and *C. Mastersianum* in the form of a huge bush. Here also was the one plant in cultivation of *Pescatorea Russelliana*, and which is prized accordingly. *Cypripedium Sedeni* and *C. insigne Maulei* are scattered throughout these houses, and all are fine. *Anguloa eburnea*, a rare and beautiful pure white form, is also doing extremely well, and is sure to be sought after. Dawson's variety of *Huntleya marginata* we noticed in excellent condition.

In the East Indian house is a magnificent collection of *Vandas*, *Angraecums*, *Saccolabiums*, &c., in fine health; the plants being furnished with foliage to the surface of the pots. Most of the plants are young, but in better health they could not be. We can only notice one or two. *Saccolabium Blumei* had twenty-six leaves; *Cypripedium Parishii*, which few manage well, had seven blooms on a spike. A fine piece of the original *Lælia elegans Warneri* was noteworthy. *Cypripedium insigne Chantini* is perhaps the most beautiful and vigorous variety of that old favourite. *C. Haynaldianum* is also fine, and the same may be said of *Vanda Cathcarti*, which had the remains of a spike with five withered flowers; *V. Denisoniana* (true), *V. retusa*, *V. suavis* (Veitch's variety), *V. Lowii*, *V. tricolor Russelliana* (another, newer, and rarer variety than that noticed in Williams' Manual, and which is in Sir T. Lawrence's collection), and quite a host of others far too numerous to mention.

We intended noticing a few of the outdoor features, but find that this must be left for a future occasion. Meanwhile we urge on all who have heard of the fame of Mayfield, and who may have purposed visiting it one day, but have not yet done so, to do so at once, for soon the Mayfield they have heard of will cease to exist.—VISITOR.

MIMULUS CARDINALIS AND ITS VARIETIES.

BEING interested in this useful hardy plant, which I grow in several forms, I have referred to "Maund's Botanic Garden," the pictures in which were the wonder and the delight of my boyhood, in order to find the figure of the variety mentioned by "DUBLINENSIS" on page 13 of the *Journal of Horticulture*. I find it to be No. 813 of Maund's illustrations; and as the description in Maund is not quite as "DUBLINENSIS" gives it, I hope he will excuse me for correcting him. Maund says that *M. rosco-cardinalis*, which he figures and calls "The Scotch Hybrid Mimulus," originated in the vicinity of Edinburgh, whence he received it in 1840. He adds that it is quite distinct from Hudson's hybrid *Mimulus*, which is one of several varieties raised in the Bury St. Edmunds Botanic Garden in 1837. He also says that the variety he figures is a hybrid between *Mimulus roseus* and *M. cardinalis*, and was known to London nurserymen as *atro-rosea* and *Maclearii*. Now *M. cardinalis* is not included in Loudon's "Encyclopædia of Plants" published in 1829, and is said on other authority to have been introduced from California, 1835. So that these hybrids, if hybrids they are, must have been raised directly it was introduced.

The next question is, What is *M. roseus*, with which *M. cardinalis* is said to have been crossed? Perhaps "DUBLINENSIS" can tell me this, for I find in the "Cottage Gardener's Dictionary" that a half-hardy *M. roseus* was introduced from California in 1831; but I have had for three or four years a rose-coloured *Mimulus*, which I call *M. cardinalis* var. *roseus*, differing from the type only in the colour of the flowers, and having been, like it, perfectly hardy through the last three winters. Twenty-five years ago I bought a rose-coloured variety of *M. cardinalis* under the name of *M. Reidi*. The flower was of a better colour than that I have now, and also a better shape, in this respect resembling *M. luteus*. I kept it for many years, but lost every plant of it during the dry summer of 1868, and could never meet with it again. Two years ago I asked Miss Hope of Wardie Lodge whether she had it. She once had a similar variety, probably the one figured by Maund, but she, too, had lost it. Probably these varieties have died out. The flower I sent to "DUBLINENSIS" last summer was from a plant I bought from Mr. Ware two years ago under the name of "Crimson King." It has in all respects the habit and leaf of *M. cardinalis*, differing only in the colour of the flower. "DUBLINENSIS" remarks that this was no doubt a cross-bred plant. Without knowing the half-hardy *M. roseus* I can hardly form an opinion; but it did not occur to me that the plant was a hybrid, the colour being such as I should think might be produced by the mixture of the scarlet and the rose colour of the

two forms of *M. cardinalis*. I did not test the hardiness of *M. Crimson King* by leaving it out in the winter of 1880, but I find the other varieties of *M. cardinalis* quite hardy against cold, though not against drought.

I find in plate 77 of Mrs. Loudon's "Hardy Perennials," published about the year 1845, good coloured figures of *M. Maclayanus* (said by Mrs. Loudon to have been raised in Ireland), *M. roseus*, and *M. cardinalis*. Mrs. Loudon says that *M. roseus* is much used for hybridising *M. luteus*, but for all that it does not seem to be a common plant.—C. W. DOD.

A GOOD OLD MOUSETRAP.

ABOUT fourteen years ago a correspondent described in the Journal a very effective mousetrap. I have had this trap in use for thirteen years, and found it a gardener's friend, but I have never seen it employed in any garden I have visited. When I had charge of the gardens at Penllergare I had many of the traps in use; with one of them forty mice were caught during the winter months. The trap was set near beds where bulbs and herbaceous plants were planted. I have taken nine mice in one night with one trap. When sowing early Peas I always place the traps between the rows and dust the rows of Peas with soot, and in a short time the mice are all trapped. The trap is also very useful to nurserymen who sow large quantities of Holly berries, haws, and other hardy seeds which mice destroy. I will now describe the trap for the benefit of any of your numerous readers who may not have seen it.

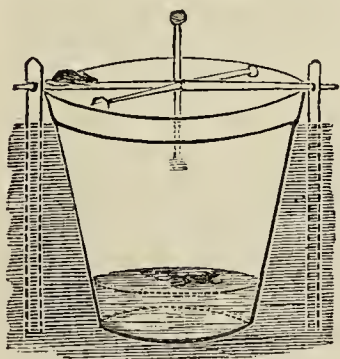


Fig 7.

Take a 10-inch flower pot, inside measure, and puddle it with clay so as to make it watertight, then well grease the inside of the pot to prevent the mice climbing up the side. Plunge the pot into the ground up to the rim where you wish to set it, fill it nearly half full of water, then take two flat pieces of deal about 8 inches long and burn a hole near the top of each; garden labels will do. Stick them into the earth, one at each side of the pot, then take a piece of deal long enough to go into each hole of the tallics, making both ends round, the centre being half an inch or more square. Burn two holes through the cross stick at the centre, one at the top and the other through the side, and put a thin deal stick through each, and at the end of each stick fasten a piece of raw bacon for a bait; the trap is then set. As soon as one mouse is caught the trap is ready set for another, for, as they try to reach the bait, the cross piece—the axle—revolves and the mice are toppled into the water. The accompanying figure will make the matter clear. The principal cross piece must work freely, the sticks containing the baits being firmly fixed in position.—JOHN NUNNS, *Wimbledon Common*.

ORCHIDS IN JANUARY.

DURING this month the temperatures of the houses should be kept the same as last. Water should be only given sparingly to those Orchids which are starting in order to prevent shrivelling. Plants that are growing should be encouraged, any old material being removed and a little fresh compost added.

Amongst those in bloom the following are the most prominent. *Ada aurantiaca* is in different stages, its deep yellow flowers remaining a long time in perfection. There appears to be two varieties of this plant, one of which opens its flowers more than the other, showing the black markings on the column, and is a fine addition to the cool house. *Ansellia africana* is producing its numerous large fragrant flowers, which are of a greenish yellow colour transversed with chocolate, and with a purple-rayed yellow lip. *Brassavola glauca*, a very curious Orchid seldom seen in flower, is at present producing its large flowers with a beautifully fringed lip. This plant does well in the Cattleya house suspended from the roof.

Cattleya chocoensis with its large bell-shaped flowers is now flowering well. The sepals and petals are broad and of a rosy white colour, the lip being slightly blotched with purple. *C. maxima* is a grand species in bloom now, producing from three to five large flowers on a spike. The sepals and petals are of a rosy colour with a richly crimson-veined lip, some of the varieties being lighter in colour than others. This *Cattleya* has been ill treated by many, who grow it in too much heat. Being a Columbian species, it should be grown in the warm end of the cool

house in a light position. *C. Trianae* and its varieties, ranging from pure white to deep rosy purple, are making a fine display in the Cattleya house. *Cattleya Warscewiczii* and *C. W. delicata* are also in bloom, and appear to be larger forms of *C. Trianae*, and are as free as that species. They last a long time in flower, and are therefore invaluable plants for the winter months.

Coelogyne cristata is now advanced, and should be at once removed into warmer quarters before the buds issue from the scape, as they are liable to damp off if left in the cool house. This, being a most useful plant for cutting purposes and flowering in a small state, should be grown by everyone.

Cypripedium concolor is a very pretty small-growing plant with its lovely variegated leaves, and is now producing its buff-coloured crimson-spotted flowers three to four on a spike. *C. villosum* appears to bloom at different periods of the year, and in many cases is in flower now, and will be in bloom also in May. The flowers are light brown in colour, the dorsal sepal being darker and edged with green, the whole shining as if varnished.

Dendrobium moniliforme—this evergreen Orchid, resembling *D. nobile*, is bearing its rosy lilac white-lipped flowers. It is a very attractive plant, and is by no means plentiful. It requires the same treatment as *nobile*. *Leptotes bicolor* is a small-growing Orchid with Rush-like leaves and pretty white and purple flowers. This does not require much room, and thrives best on a block of Tree Fern in the intermediate house. *Phajus maculatus*, a very curious plant with its dark green leaves with yellow spots and a profusion of large yellow flowers, is now in fine condition, as also is *Phajus grandiflora*, producing its long thick spikes from the new growths, bearing many brown and white flowers, and is a very pretty variety for this time of the year.

Pilumna fragrans is a deliciously fragrant Orchid and extremely useful for cutting purposes. It produces from three to four flowers on a spike. The sepals and petals are greenish white, the lip being pure white with a yellow throat. It succeeds in the cool house. *Sophronites cernua*, a very free-growing epiphyte, produces short, slender, erect spikes bearing from two to three small vermilion flowers with a small yellow-marked lip. *Sophronites grandiflora* is making a brilliant display among the *Odontoglossums* with its bright scarlet flowers. *S. violacea* is also in great beauty. *Vanda suavis*, tricolor, and varieties are now displaying their beauty. We do not see many of these in the various collections or exhibitions, which is the more remarkable, as they are of easy culture and very free-flowering plants. *Zygopetalum crinitum* is somewhat similar to *Z. Mackayii*, differing in its not being so robust a grower and the colour of the lip being darker.—ORCHIDIST.

CHRISTOWELL.*

IT is not often that horticulturists have to tender their thanks to an eminent writer of fiction, yet I think this is most fairly due to Mr. R. D. Blackmore, the well-known author of "Lorna Doone," "May Anerley," "Alice Lorraine," and other choice novels. There is always such a thoroughly English tone about all his writings. His scenes are all laid in one little island; his knowledge of rural life and the men and women who move therein is so thorough, and there is such a healthy, manly, and high-principled character about them, that they deserve very high praise. There is none of that glorifying of crime to be found in his books of which some lady writers I am told are fond (but I have never read one of their books); there is, moreover, such quaintness of expression, and when needed such biting sarcasm, that they add greatly to the charm of his works. His last book, "Christowell," is a delightful tale of Dartmoor; but it is not the tale so much I would draw attention to as the way in which gardening is treated. We know how it is ordinarily alluded to in works of fiction; we get fine descriptions of impossible gardening; of flowers like the Azalea and Hollyhock blooming together, of colours which are never seen, and fruits which no skill of a Thompson or an Ingram could get to fruit at the same time, but which, by a stroke of the pen more powerful than the electric light, they are made to do. But then Mr. Blackmore is a gardener. He is a thoroughly skilful fruit-grower; and when he describes the tender care with which Captain Lachs handles his fruit trees, we can see that he is speaking of what he himself has often done in the delightful description he gives of his greenhouse, &c. Here is what he says of a flower so few know anything about, but which Mr. Blackmore evidently loves. After describing his greenhouse, &c., he adds, "But best and dearest of all to him, and set in a separate nook as in a flagged bureau with lifting glass, that exquisite flower of exclusive worship, that gorgeous instance of

* "Christowell, a Dartmoor Tale." By R. D. Blackmore. Three vols. Sampson, Low, & Co.

Nature and Art combined to do their utmost, the majestically beautiful Auricula."

"And then, indulging in sweet poetic license, he describes some seedlings of his own raising. 'No gardener is worth his manure who has not a fine conceit of his own skill. I should like to have some of those Lancashire fellows or a few of those Kentish braggarts here (I don't think I am one of them, perhaps I am),' this man said aloud, being apt to encourage his thoughts when alone with the company of words. 'If I know anything of the matter, this green-edged seedling, beautifully named Dartmoor Oasis by my Rose, and this grand self one would gaze at all the day; and above all this white edge, this glorious white edge, have they anything fit to hold a candle to them? Consider the paste, take the measure of the thorn [thrum?], dwell upon the band. Can you spy a single slur? Above all, if you have a particle of judgment observe the quality of the pips, the perfection and fulness and true circle of the truss, and the grand, columnar, mealy, magnificent, starchy, upright (no stake), and splendidly proportioned—really you might say pillar of the stalk.'"

Mr. Blackmore has a fine appreciation of the overdoing of bedding-out and stands up bravely for our old garden plants. He has a hard word, too, for the assumptions of science, and a good contempt for those who, half-scientifically-taught, consider themselves qualified to despise their neighbours. Yes, for all who value good and noble thoughts set in plain and solid English, and especially to all who love a garden and the wider garden of our English landscape, I would say, By all means read "Christowell."—D., Deal.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Henry Little, Esq., F.R.H.S., in the chair, the following candidates were duly elected Fellows of the Society—viz., Daniel Baker, R. D. Blackmore, Mrs. Blackwood, Mrs. N. Bowden-Smith, Cecil Dunn-Gardner, Mrs. Ebdon, C. J. G. Eiloart, Mrs. Eiloart, Mrs. Halls, John Parry Jones, D. C. Lathbury, Miss Maud Macdonald, Mrs. Marsh, General Maxwell, Mrs. Brinsley Nixon, Captain G. S. Sewell-Gana, General Simpson, Miss Emily Walds.

— WE learn that the materials for an edition of "STEUDEL'S NOMENCLATOR BOTANICUS" brought up to the present time, is in course of preparation at Kew. The editorial part of the work is undertaken by Mr. Daydon Jackson, Mr. Darwin supplying the funds necessary to prepare the work for publication.

— THE two SPRING EXHIBITIONS OF THE ROYAL BOTANIC SOCIETY will be held on March the 29th and April 26th of the present year. At the first the principal classes are those for Azaleas, Hyacinths, Tulips, and miscellaneous forced plants. At the second Roses, Azaleas, Amaryllises, Cinerarias, and stove and greenhouse plants are specially provided for.

— "A WEEK since," writes a correspondent, "I observed in the Anerley nurseries of the General Horticultural Company a specimen of DRACÆNA GOLDIEANA showing indications of flowering. A terminal bud enveloped in purplish bracts had formed—very different from the ordinary Dracænas. Though the individual flowers were not discernible, there certainly appeared to be characters sufficient to make it generically distinct from Dracænas. Plants have flowered before, I believe, in France and Italy, but I am not aware that any careful observations were taken."

— ABUNDANT amongst the numerous flowers in Covent Garden Market during the past week have been sprays of the fragrant light yellow ACACIA DEALBATA, which appears to be a great favourite with the bouquetists. The small globular heads arranged in a loose panicle-like inflorescence are very pleasing.

The colour is a most delicate shade of yellow, and the fragrance powerful yet agreeable.

— MR. BARDNEY desires to correct his statement relative to the MADRESFIELD COURT VINE alluded to on page 3. Instead of the stem being $3\frac{1}{2}$ inches in circumference as stated, read $5\frac{1}{2}$ inches. The stem is $3\frac{1}{2}$ inches at 6 feet 6 inches from the base.

— WE learn that our correspondent MR. HUGH ELLIOTT of New Heys, Allerton, Liverpool, sails for Australia on the 19th inst. A notice of the excellent condition of the garden that has for some years been in Mr. Elliott's charge appeared in our columns in 1879, and he was described there as a "persevering, energetic and able gardener." That we believe to be a perfectly just estimate of a worthy, industrious, and intelligent man, and he has our best wishes for his prosperity.

— WE are informed that Mr. JUDD, gardener to C. Secly, Esq., M.P., of Brooke House, Isle of Wight, is relinquishing his charge there, which passes to the hands of the foreman of the establishment, Mr. Trickett. Mr. EDWARD KITE, late of Severn House, Ironbridge, has been appointed gardener to Col. Paulet, Wellesbourne House, Warwick.

— WE have received Mr. Shirley Hibberd's "GARDEN ORACLE," which is as usual full of useful gardening information. The speciality of this year's issue is "a synoptical catalogue of garden Roses introduced to cultivation within the past fifty years." To rosarians and to lovers of the Rose generally this will prove of great value. It is arranged in a tabular form, the first column giving the name of the variety; the second the class, whether H.P., T., Noi.; the third the name of the raiser; the fourth the year of introduction; the fifth the colour; the sixth, size; and the seventh the habit.

— AMONG the ORCHIDS AT KEW we recently noticed a specimen of the beautiful DENDROBIUM AUREUM flowering very freely. It was growing in a basket suspended from the roof of the warm compartment, and one growth within the space of about 8 inches bore no less than two dozen flowers. The sepals and petals are pale yellow, the lip being of a deeper shade and veined with chocolate. The bank of Cypripedium insigne and its variety Maulei at one end of the cooler division is also now very attractive, the plants being in excellent health and bearing a large number of flowers. Odontoglossum cariniferum, Oncidium aureum, Brassavola caudata, and Ansellia africana are flowering similarly well. The last-named is a very attractive Orchid at this season, the yellowish sepals and petals being barred with rich reddish brown. Many others are showing well; while in the porch of the house, where the Sarracenias and Droseras are accommodated, a plant of the beautiful Pinguicula caudata had one of its fine rosy purple-tinted flowers expanded.

— THE Annual General Meeting of the METEOROLOGICAL SOCIETY will be held at 25, Great George Street, Westminster, on Wednesday, the 18th inst., at 7 P.M., when the report of the Council will be read, the election of Officers and Council for the ensuing year will take place, and the President will deliver his address. The Council of the Society having determined upon holding an exhibition of Anemometers on March 15th, the Committee are anxious to obtain as large a collection as possible of various patterns of anemometers, either full size, models, photographs, or drawings. Special interest will attach to all apparatus bearing upon the history of anemometers and to their modification and improvement. The Committee will also be glad to show any new meteorological apparatus invented and first constructed since the last exhibition. Intending exhibitors are requested to furnish within fourteen days a list of what they will be able to exhibit and the floor space required to Mr. William Marriott, 30, Great George Street, Westminster, S.W.

— AT a meeting of gentlemen held at the George Hotel, Hull, on the 14th inst., to consider the raising of a fund as a testimonial to the late MR. J. C. NIVEN, the following resolution was carried unanimously, viz.—“That in recognition of the long and valued services of the late Mr. James Craig Niven as the Curator of the Old Botanic Gardens and the Manager of the present Botanic Garden Company, extending over a period of twenty-eight years, and of his eminent contributions to the cause of botanical science, and as a remembrance of his public worth and many gratuitous labours for the town of Hull, and of the sincere respect in which he was held by all who knew him, a fund be raised as a testimonial, to be applied for the benefit of his widow and children.” At the same meeting a large and influential Committee was formed for the purpose of carrying out the resolution. Subscriptions to the amount of about £130 have already been promised, and contributions can be paid to the Treasurer, Charles Copland, Esq., The Park, Hull; or to Messrs. Pease & Sons, Bankers, Hull, to the credit of the Niven Testimonial Fund.

— WE learn that Mr. JAMES DICKSON of Arkleton, the renowned Grape-grower, has, by the advice and on the recommendation of his appreciative employer, been appointed gardener to Robert Jardine, Esq., M.P., of Castlemilk, a much larger garden than the one that he has managed with such great success for a number of years. The following is a brief record of Mr. Dickson's success as a cultivator of Grapes—In the year 1869, at the Edinburgh International Exhibition, the first prize was awarded to him for a bunch weighing 16½ lbs.; in 1870 his first-prize bunch at the Royal Caledonian's Society Show weighed 19 lbs. 5 ozs.; in 1871 his first-prize bunch at the same Society's Show weighed 18 lbs. 7 ozs.; in 1872 his first-prize bunch at Glasgow weighed 19 lbs. 6 ozs.; in 1873 at Manchester his prize bunch weighed 16 lbs. 1 oz.; and in the same year another bunch at Glasgow weighed 16 lbs. 10 ozs.; then came the bunch exhibited at Edinburgh in 1875, weighing (by the Judges) 25 lbs. 15 ozs.

— FEW trees, and certainly no other Conifer, form singly such a magnificent feature in the landscape as the CEDAR OF LEBANON; but it seems to have been considerably neglected by the planter in recent times, as comparatively few are to be observed in the plantations and ornamental grounds formed within the past thirty or forty years. This may be partially attributed to the great influx of exotic Conifers of an ornamental character which has taken place during that period, and partly to the slow progress made by the Cedar in its early stages. When once it is fairly established in its permanent site, which it often takes ten or fifteen years to accomplish, it grows with great vigour, and often reaches a large size before it is a century old, especially if planted in a good soil and sheltered situation. It thrives best in a deep rich loam, and an open or well-drained subsoil; but it is by no means fastidious, and will thrive in almost any soil which is neither stiff clay or waterlogged. Planted as a forest tree the Cedar makes a straight clean stem, towering to a height of 80 feet or more, and having much resemblance in the bark and hole to a gigantic Larch crowned with an evergreen top. Such a grand tree deserves to be much more extensively planted than ever it has been in this country, and planters will do well to bear it in mind when arranging for future operations. —(*Journal of Forestry.*)

— THE “Colonies and India” has the following remarks upon THE FRUIT TRADE OF JAMAICA—“Exports of Oranges and Bananas to the United States is advancing with remarkably rapid strides; though, in comparison with the resources of the country, it has barely begun. The quantity of fruit sent into the market of late has far exceeded the capacity of the steamers and

sailing vessels engaged in the traffic, to the loss of the growers in several instances. One steamer shut out three thousand barrels of Oranges beyond her cargo; and it is probably not an over-estimate to rate the total losses for lack of water conveyance at eight to ten thousand barrels of Oranges from Kingston alone. The quality of the fruit is fully recognised upon the American market. The Jamaican Banana is preferred before that of Cuba, and we are now supplying the latter island with ‘suckers’ of better kinds. Considering that the Cubans have been much longer in the field of fruit cultivation, this is further cause for congratulation. Over two shiploads of suckers have been exported. The botanic department branch of the Government service is also doing energetic work in all matters connected with agriculture and horticulture. A hundred thousand young plants of timber, fruit, and ornamental trees, shrubs, &c., are advertised as ready for delivery to the public. An analysis of certain Chinchona barks, made by Mr. J. E. Howard, F.R.S., and recently published, gives the best results in respect of their quality. The experiment of Chinchona cultivation, begun some fifteen years ago, has now been carried to a successful issue in every respect. All the best varieties can be grown, and there is plenty of land suitable for plantations. The quality of the barks not only does not deteriorate, but realises the highest prices in the world's market. It only remains, therefore, for capital to be invested, and careful management secured, for the handsomest profits to result.”

CHRYSANTHEMUM CULTURE—EFFECTS OF GRAFTING.

OF the increasing popularity of the Chrysanthemum there can be no doubt. This is probably owing to the stimulating effects of the many excellent exhibitions which are yearly held. As a result of these bright displays in a dull season many are induced to try their skill in the cultivation of the Chrysanthemum, and it is for these the following remarks are intended, and which have reference to the practice generally adopted about Liverpool.

The present is a good time for inserting cuttings. Strong suckers about 3 inches in length should be selected. These may be placed singly in 3-inch pots, or several in 5-inch pots. We adopt the latter practice. I advocate using good soil in all stages. That employed for the cuttings is composed of two parts loam and one part each of well-decomposed manure and leaf soil, with a good dash of sand. When well rooted they are potted-off singly in 4-inch pots in the same compost as before. The plants must not be pinched but grown erect with single stems; and should green fly appear fumigate with tobacco, or dip the plants in a solution of Gishurst compound. They should have a light airy position either in a greenhouse or frame from which frost can be excluded. When the plants have well advanced shift them into pots 6 inches in diameter, using similar soil but rougher, potting rather firmly. The plants will then be growing fast and will require securing to stakes. The first or second week in May, should the weather prove favourable, they may be removed to their summer quarters outdoors, which should be a level sheltered position, though fully exposed to the sun. Under no circumstances must the plants be crowded. Ours are placed in single rows, running north and south, 3 feet apart. By the first week in June the pots will again be filled with roots, and the plants will require shifting into pots 9½ or 10 inches in diameter, but not larger. The compost for this potting may be the same as before, with the addition of bonemeal at the rate of half a peck to three barrowloads of soil. The pots must be carefully drained, and the plants potted firmly.

When from 2 to 3 feet high the plants will naturally break into three or more branches; if more the weakest must be removed, the others must be retained. All side shoots must be removed. As the plants progress in growth care must be taken to prevent injury by strong winds. Long stout stakes painted green are best, but when hundreds are required these are not always at command. A simple substitute is to place strong stakes at intervals, suspending from these lines of strong tar cord after the manner of an espalier fence. The shoots are easily secured to these.

When the pots are filled with roots the application of liquid manure may be commenced. This must be well diluted; in fact

it should not exceed the colour of pale ale to commence with, but much depends on the nature of the manure to be applied. Ours is pumped from a well containing the drainings of the stables and farmyard and is very strong. If these facilities are not at command procure a bushel of sheep manure, a peck of soot, and 1 lb. of guano. This should be tied in a coarse bag, placed in a tub and filled with water, well pressing the bag to extract the strength. Mr. Luckhurst, on page 544 last volume, says the secret of obtaining fine Chrysanthemum blooms lies in the sewage pump, and to a certain extent he is correct. Chrysanthemums must have liberal treatment, but I have proved, at least to my own satisfaction, it is easy to treat them too well. During the past season we have had some plants of the stoutness of walking sticks, but in every instance these were very inferior to those of smaller growth, yet strong and well matured. After the buds are set the strength of the liquid manure may be increased considerably, and a good mulching of sheep manure will assist the plants to form fine buds. This may be continued until the flowers are showing colour, when the liquid may be decreased in strength, but not wholly withheld, until the flowers are fully expanded.

The operation of disbudding is a very important one, and for which no definite rules can be formed; the cultivator, however, will easily overcome this difficulty by careful observation. After the natural branching above referred to, the first bud to appear is termed by many growers the "July bud;" this, in the majority of cases, is useless and may be removed. At this bud also the plant will naturally break into two or three branches, the strongest only of which must be retained. The next bud to appear is generally the one to be selected, and all further growth must be instantly removed. On the approach of cold weather the plants must be removed to a light airy structure from which frost can be excluded, and where the heat may be occasionally utilised for the purpose of evaporating superfluous moisture, which is often more destructive than frost.

Two years ago, for the sake of experiment, I grafted several varieties of Chrysanthemums for the production of specimen blooms, the results of which were encouraging; consequently last spring I renewed the experiments, my object being to increase the size of the smaller varieties by grafting them on the stonger growers, and improve those of a coarse or uncertain character by being worked on those of a more hardy constitution. For instance, G. Glenny grafted on Empress of India produced finer blooms than on its own roots; on the other hand, Empress of India and Golden Empress worked on Mrs. G. Rundle were very satisfactory, also Miss Mary Morgan worked on Golden Empress was clearly ahead of others on their own roots. A bloom cut from the latter was sent to the Editor. The grafting was done towards the end of February after the young plants were well established in the 4-inch pots, ordinary wedge grafting being adopted. The stock was shortened to within 2 or 3 inches of the soil, the scion being a young growing top of the desired variety about 2½ inches in length. When in position these were made secure with soft matting, the union was sure and rapid; in fact, I know of no plant so easy to graft as a Chrysanthemum.

Plants grown in the manner described are considered by many useless as decorative objects on account of the great height to which some attain; I think, however, in many cases this difficulty may be overcome. In our case the conservatory stages were removed and the plants arranged on the floor. The tallest were placed at the back, and the whole arranged to form a sloping bank down to the flags. To effect this the front part was filled in with a row of bushy Pompons, again in front of these Abutilons and Zonal Geraniums, the whole being margined with the common but useful *Pteris serrulata*. The result was bright and effective.—A. R. Cox, *Elm Hall, Wavertree*.

[The experience recorded is interesting, and the fine bloom sent suggests that the practice of grafting with the object indicated is worthy of the attention of cultivators.—ED.]

THE KHAN OF KHIVA'S GARDENS.—In the interesting work by Lieut.-Col. F. Burnaby, "A Ride to Khiva," the following description of the Khan's Gardens is given:—"The Sovereign's gardens are about three versts from the town. He has five; each of them is from four to five acres in extent; they are surrounded by high walls built of dried clay, with solid buttresses at the corners. Two large wooden gates at the entrance of the enclosure were opened by the gardener, a little swarthy man clad in a dressing gown of many colours, and with a long iron hoe on his shoulder. I was accompanied by the son of my host, and Nazar; when the former, saying that I had the Khan's permission, the gardener stepped aside and allowed us to enter. The garden was remarkably well kept, and the horticultural arrangements much better than I expected to see so far from Europe. Here were to be seen long avenues of fruit trees carefully cut and trimmed. Three men were

engaged in preparing the soil, which would be thickly studded with Melons the following spring. Apple, Pear, and Cherry trees abounded, whilst in the centre of the ground high scaffoldings covered with trelliswork showed where in summer the Vines are trained. The Khan has a summer palace where he resorts and holds his court in June and July. Trenches for the purpose of irrigation are cut in all directions about the grounds, whilst Mulberry trees are interspersed throughout the garden."

THE HOLLOWAY NURSERIES.

MR. B. S. WILLIAMS' Victoria and Paradise Nurseries at Upper Holloway have obtained a well-deserved fame for the large and choice collections of plants they contain; and few horticulturists visit London on a tour of inspection through the principal parks, nurseries, and gardens without including those at Holloway among the most important on their list. All who are interested in the principal groups of plants that are now employed in decorating cool and warm houses will find there some striking novelties in each section, as not only is attention paid to securing a good stock of plants that have obtained a high position in the favour of the horticultural world, but care is exercised also to add to the collection any really valuable novelty that can be procured. In consequence numbers of new species or improved varieties of well-known plants are annually sent out from these nurseries. Orchids are especially strongly represented, and beautiful varieties are included by hundreds, some distinct forms being always to be seen in flower whatever season is selected for a visit. Ferns, Crotons, Dracenas, and numerous other fine-foliage plants are similarly abundant; while among other specialities may be noticed the handsome collection of *Nepenthes*, the hardwooded and other greenhouse plants, the Camellias, Amaryllises, and Azaleas, all which contribute attractions of no mean degree at different periods of the year. In the following notes, however, the chief object is to indicate the most beautiful novelties in the various departments, with special reference to such as seem most likely to take a foremost place amongst useful garden plants.

FERNS.—The admirers of Ferns do not appear to decrease in numbers; indeed, judging by the demand existing for such plants, the culture is extending, and the desire for novelties is almost as great as in some other popular families of plants. It is not surprising that to meet this Ferns are introduced in large numbers annually, and amongst these are always some remarkable either for their distinctness or gracefulness, though necessarily others possessing little but botanical value are also imported. The latter, however, are soon consigned to scientific establishments; only the forms that from beauty and free growth are proved to be of real value to horticulturists are grown. At Holloway *Gleichenias* receive much attention, most of the best species and varieties being represented. *G. rupestris glaucescens*, with well-marked glaucous-tinted fronds, and the handsome compact-growing *G. Mendelli* are both good Ferns, but certainly the most graceful of the recent acquisitions in this genus is the Australian *G. dicarpa longipinnata*. In this Fern the fronds have four spreading pinnae, each closely furnished with narrow dark green pinnules 2 or 3 inches long, and very neat in appearance. The plant is of good habit, quick growth, and undeniably graceful. *Adiantum Williamsi* well maintains its distinct characters, in fact it appears to improve, several handsome specimens of good size being noticeable in the collection. As it becomes better known this Fern is likely to be a general favourite in gardens, especially as it is found to succeed in a temperature little above that of an ordinary greenhouse.

The little *Actiniopteris radiata australis*, for which Mr. B. S. Williams obtained first-class certificates at several of the leading exhibitions last year, also deserves a word of notice. Though not entitled to rank amongst useful Ferns such as *Adiantum cuneatum*, it should be grown wherever there is a collection of exotics, as it is attractive both for its dwarf habit and neat Fern-like fronds. It is, moreover, of easy culture, succeeding well in shallow pots or pans of peat and good drainage. *Asplenium apicidens*, another exhibited with similar success last year, has pinnate fronds of moderately firm texture, each pinna being much divided at the apex, to which the specific name refers; the bright shining green colour is also an attraction. Three other *Aspleniums* have been added to the collection, each distinct and meritorious—namely, *A. Baptisti*, introduced a year or two ago, but not yet so well known as it deserves to be; it has fine bipinnate fronds frequently 18 inches long, and dark green in colour. *A. horridum*, a by no means unattractive Fern, though possessing such a formidable name; it has pinnate triangular fronds nearly 2 feet long and of firm texture. *A. contiguum fissum* has neat dark green pinnate fronds, the pinnae very regularly and neatly cut. Perhaps one of the most distinct novelties

is *Davallia gibbrosa*, which is very suggestive of *Asplenium bulbiferum*, and easily recognised at a glance from all other *Davallias* at present in cultivation. It is very elegant, and will doubtlessly become a great favourite. In concluding the notes in this department mention must be made of the Filmy Ferns, which are well represented. These delicate and pretty species are always admired, and a very good collection of the best *Trichomanes* and *Hymenophyllums* are grown; the hair-like *T. trichodeum* being especially attractive, even amongst so many of its more recently introduced and delicate allies.

ORCHIDS.—One of the finest collections of Orchids in cultivation is that possessed by Mr. B. S. Williams, and a hurried occasional visit can convey but a very imperfect idea of the numerous superb species and varieties included therein. A weekly, even a daily journey, a month or two hence would reveal fresh treasures. Fortunately most of the best have durable flowers, the beauty of some lasting for weeks, and thus there is always a display of more or less extent. To enumerate and describe all those in flower, even at a midwinter visit, would occupy much space, and some of the most striking can only be noticed. In one of the



Fig. 8.—MAXILLARIA LEPIDOTA.

cool houses amongst the *Masdevallias*, *Odontoglossums*, and some *Cypripediums*, the distinct *Maxillaria lepidota* (fig. 8) was flowering. This is a native of Columbia, and though it has been known for some years, having been described by Dr. Lindley, living plants, we understand, were first brought to England about five years ago, and flowers were produced at two establishments at about the same time. It is of good habit and flowers freely in small pots. The specimen from which the accompanying woodcut was prepared was growing in a 60-size pot, and bearing nine flowers with abundance of healthy dark green foliage. The flowers have long tapering sepals and petals of a yellow hue, the former tinted with brownish red near the base. It succeeds well under similar treatment to the *Masdevallias*. The old and useful

Cypripedium insigne was in first-rate condition, and the beautiful variety *C. Maulei* was admirably represented. There was also another variety even surpassing that, but a description of it and some other good Orchids must be deferred to another issue.—VISITOR.

PRIMULAS IN SMALL POTS.—Had "AN OLD PRIMULA GROWER" seen some of our plants on the table the other night when we had thirty persons to dinner, he might have been induced to admit that there was something worth trying in our plan after all. For table, room, and house decoration generally, I find from daily experience that nothing is more convenient than having quantities of healthy foliage and flowering plants in pots as small as they can be grown

in, and our aim will be in this direction more and more with Primulas and many other plants. We have Primulas with blooms as large as a penny, but this I do not attribute so much to culture as "variety" or strain. We have had some massive plants with flowers that no amount of "short liquor" or large pots would make larger than a fourpenny-piece.—M.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 10TH.

COMPARATIVELY bright weather favoured this meeting, and though the Council-room was by no means crowded with exhibits, several pretty groups and useful new plants were staged.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Mr. J. H. Powell, Clewer, Windsor, sent a seedling Apple, a conical and ribbed fruit of medium size, and clear yellow colour, but it was evidently past its best and did not exhibit any merit. Rev. G. M. Straffen, Tillington Rectory, Petworth, sent six dishes of Apples—Grecian Pippin, Round Winter Nonsuch, Cornish Gilliflower, Cat's-eye Pippin, very similar to Blenheim, New Golden Pippin, a large Apple erroneously called Scarlet Nonpareil, and Queen's Own. A letter of thanks was awarded. Messrs. Cutbush & Son of Highgate sent a seedling Apple from Suffolk which did not possess any merit and was passed. Mr. Robins, The Gardens, Rhyd Court, sent a seedling Apple which did not possess sufficient merit to receive an award. Mr. R. Dean, Ealing, sent a dish of Winter Pearmain Apple, which was much admired, and a letter of thanks was awarded. Messrs. Cranston of Hereford sent a dish of an Apple called erroneously Herefordshire Beefing, but it was supposed to be Reinette Baumann. Mr. Burnett, Deepdene Gardens, sent a dish of Essex Spice Apple, but it was not possessed of the high flavour this variety usually has. Messrs. Lane & Son of Berkhamsted sent a dish of Hambledon Deux Ans. Mr. Burnett also sent a dish of Beurré Sterckmans Pear. The specimens were excellent, but the flavour inferior. Messrs. Rivers & Son of Sawbridgeworth sent fruit of Nancy Jackson and Lord Burghley Apples. The former is much grown in North Yorkshire, and is a valuable kitchen Apple, a handsome fruit, and the tree an excellent bearer. Lord Burghley was highly coloured and of good flavour.

Messrs. Rivers also sent a collection of twelve varieties of Orange, including Maltese Blood, Bettercourt, Small Lime, Bijou Lemon, Thin-rinded St. Michael's, White, Egg, Sustain, Achilles, Tangerine, Silver, and St. Michael's. A silver Knightian medal was awarded. Mr. Burnett of The Deepdene exhibited two basketfuls of Mrs. Pince's Black Muscat Grape which were in fine condition. They were remarkably well flavoured, and had been grown on a Vine grafted on Royal Muscadine. A vote of thanks was awarded.

Mr. J. F. Barter, Harrow Road, London, exhibited three punnets of Mushrooms grown out of doors, which were highly commended, and, as a cultural commendation was awarded at the last meeting, a vote of thanks was given.

FLORAL COMMITTEE.—For a meeting so early in the year the display was by no means insignificant, and several plants of great interest were awarded certificates. Messrs. James Veitch & Sons, Chelsea, sent a group of new plants, several of which were certificated. Begonia socotrana was represented by several plants flowering well. The white Jasminum gracillimum, the elegant Davallia Mariesi, and the buff-coloured Rhododendron Queen Victoria were similarly noteworthy. The Committee expressed a desire to see the Rhododendron again. Messrs. H. Cannell & Sons, Swanley, contributed stands of Zonal Pelargoniums double and single, the latter remarkable for the great size, good form, and brilliant colour of the flowers. Some of the most telling were Commander-in-Chief, scarlet; W. B. Miller, scarlet; Dr. Orton, dark scarlet; Mrs. Turner, yellowish scarlet; Eurydice, rose; and H. M. Pollett, scarlet, white eye. A dozen plants of a very handsome variety of Primula sinensis named Princess of Wales were also shown, which was certificated, and is described below. Blooms of Cineraria cruenta, rosy purple; Chrysanthemum frutescens, white; and Agathaea caelestis, blue, were very pretty; also some deep-coloured blooms of Primulas, a plant of one, name Dr. Denny, having large blooms of a very deep red hue, one of the darkest. The General Horticultural Company sent a plant of Dracaena Goldieana in flower, said to be the first plant that has flowered in this country. The flowers are produced in a close terminal head surrounded by reddish brown bracts. The flowers individually are insignificant. In general appearance the inflorescence is very distinct from the Dracaenas known in gardens. Messrs. F. Sander & Co., St. Albans, sent a new Orchid named Trichocentrum Pfavi, an epiphytal species, the leaves being narrow, 3 or 4 inches long. The flowers are borne singly or in pairs on peduncles about 2 inches long; they are small, not exceeding three-quarters of an inch in diameter, the sepals and petals white barred with brown, and the lip white with a rose blotch at the base.

Mr. Todman, gardener to J. Connell, Esq., Bushy Down, Tooting Common, exhibited several seedling Azaleas raised from crosses between Azalea amœna, A. ramentacea, and A. obtusa. They were the following—Prince Leopold (obtusa and Todmanni), flowers bright red, of moderate size; Miss Lizzie (amœna and Alice), light rose, semi-double, undulated margins; Miss Annie (amœna and Cedo Nulli), purple, neat flowers; Princess Beatrice (ramentacea and narcissiflora),

white, semi-double; Miss Nellie (amœna and Cedo Nulli), similar to Miss Annie, a little brighter in colour; Prince George (obtusa and Eugène Mazel), deep red; Miss Todman (amœna and Cedo Nulli), rosy purple, rounded petals. Most of the plants resembled A. indica in the foliage, the flowers being of larger size than any of the parents. The deep red, almost scarlet, Prince Leopold and the white Princess Beatrice are certainly two pretty varieties, well worth the attention of cultivators. A cultural commendation was awarded to Mr. W. Allan, The Gardens, Gunton Park, Norwich, for trusses of remarkably large and handsome flowers of Lapageria rosea; the leaves, too, were of unusual size, 6 or 7 inches long by 5 or 6 broad. Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley, sent flowers of Bignonia venusta, an ornamental and useful winter-flowering species, with tubular orange-coloured blooms in axillary umbels. A vote of thanks was accorded. Mr. C. Turner, Slough, sent a fine variety of Tree Carnation named Worthington Smith; the flowers of neat form, rich scarlet in colour. Messrs. James Carter & Co., High Holborn, sent baskets of Primula Rosy Morn, with large deep rose flowers of great substance; neat plants of Bouvardia Alfred Neuner, and the blue Primula Holborn Gem, which was certificated. A collection of Primulas was sent from Chiswick, including some fine single varieties with large flowers and of rich colour. The doubles—Mrs. Barron, white; Earl of Beaconsfield, rose; Marchioness of Exeter, white; and Princess, also white, were similarly fine. G. F. Wilson, Esq., Weybridge, was accorded a vote of thanks for several fine Odontoglossums in 60-size pots. The plants were flowering excellently; some forms of O. Alexandræ being particularly fine, with over fourteen flowers in a spike. The diminutive Iris Kolpakowskiana was also shown, bearing one of its small purplish flowers, the whole plant not exceeding 4 inches in height.

First-class certificates were granted for the following plants—

Amaryllis Autumn Beauty (Veitch).—A pretty hybrid, the result of a cross between *Amaryllis reticulata* and a scarlet variety. The leaves resemble A. reticulata in having a white central band; and the flowers are also somewhat similar, being veined with rose on a white ground.

Laelia anceps Veitchii (Veitch).—A remarkably pretty variety of a well-known species. The sepals and petals tapering, white; the lateral lobes of the lip veined with purple; the throat veined with dark red, a yellow central blotch, and the tip purplish lilac. Each of the two spikes had three or four flowers.

Erica hyemalis alba (Kingham).—A sport from E. hyemalis with pure white flowers, but exactly similar in habit and growth to that species. It appears to have been well fixed, and will undoubtedly become popular as a suitable companion for E. hyemalis.

Primula sinensis Princess of Wales (Cannell).—An exceedingly beautiful variety, very floriferous, of compact yet vigorous habit. The flowers are large, 2 inches in diameter, white suffused with a delicate rose tint, and are borne in enormous pyramidal trusses above the foliage.

Lygodium Forsteri.—A first-class certificate was awarded to Mr. J. Kettle, gardener to H. E. Green, Esq., Kingsford Flanway, Colchester, for this Lygodium, a vigorous-growing and attractive form. The sterile fronds are pinnate, with three or four pairs of tapering pinnæ, each about 3 inches long. The fertile fronds are similar in form but smaller, and with the margins of the pinnæ deeply and regularly incised.

Primula Holborn Gem (Carter).—This has been frequently referred to in these pages in terms of approval as a distinct variety, and the plants for which the certificate was granted showed even further improvements. The habit is compact, the foliage neat, the flowers of good size and form, and the blue tint has been considerably deepened. It is unquestionably one of the most distinct in commerce.

Tecophilæa cyanacrocus (Wilson).—A pretty little bulbous plant 3 or 4 inches high with bright blue flowers about three-quarters of an inch in diameter, having six ovate segments.

SCIENTIFIC COMMITTEE.—*Hylecatus dermestoides*.—Mr. Pascoe showed a male and female specimen of this English beetle, and alluded to the report that it feeds on the wood-boring species, but does not bore the wood itself. Mr. McLachlan remarked that it was an open question whether this idea were true.

Coltsfoot in Blossom.—Mr. McLachlan observed as a proof of the mildness of the season, that he had noticed this plant flowering between Lewisham and London.

Sobralia macrantha Leaves.—Dr. M. T. Masters exhibited leaves of this plant in a blackened state. They were received from Mr. Douglas of Ilford. It was thought to be due to an overdose of tobacco water. Further information was requested to be asked for.

Glastonbury Thorn.—Dr. Masters exhibited a specimen of this plant received from Mr. Boscawen, with fruit; also in bud, as it is flowering later than usual. He also showed a variegated sport of the common Laurel from the same gentleman.

Willow sp.—Some specimens of new species of Willow, S. holosericea, &c., were received from Dr. Fraser of Wolverhampton. It was suggested that they were accidental importations. They were forwarded to the Kew herbarium.

Papaya cundinamaricensis.—A fruit of this plant was received from Mr. I. A. Henry of Edinburgh. It was raised from seed sent by the late Professor Jameson of Quito, and had been fertilised by Professor Dickson. It is described as "very fragrant, and makes when boiled or in clarified syrup an excellent sweetmeat."

The Nitrogen in Wormcasts.—Dr. Gilbert described some experiments he had made in order to ascertain the proportion of nitrogen in wormcasts; which latter according to Mr. Darwin amount to between 17 and 18 tons per annum per acre, of 0.2 inch in depth. He collected the casts of two or three weeks' formation, and found by analysis of the dried mould that it contained 35 per cent. of nitrogen; which is higher than that of mould of pasture land of the first 9 inches, or two to three times as high as that of arable land, but not so rich as in highly manured kitchen garden mould. Ten tons per acre would therefore yield 80 lbs. of nitrogen per annum, or more than double that of ordinary meadows without manure. The conclusion was, there is no gain to the soil except from what the worms brought up from below as by trenching.

Plants Exhibited.—*Columnæa Kalbreyeri* with satin-like pendulous second leaves and yellow flowers from New Grenada, exhibited by Messrs. Veitch. It received a botanical certificate. *Dracæna Goldieana* flowering for the first time in this country, though it blossomed last year at Marseilles, received a botanical certificate. It was exhibited by Mr. Wills. *Tecophlæa cyanacrocus* from Chili. This had flowered previously at Kew. It was shown by Mr. G. F. Wilson. A small bulbous plant with a slender tubed and globular perianth, of lilac colour, brought by Mr. Maw from Mount Ida, was exhibited by the Rev. H. H. Crewe. It was referred to Kew for identification. *Lygodium Forsteri*, a fine specimen of a climbing Fern, from Mr. Green near Colchester.

LECTURE.—Fine sprays of *Lapageria*, another of *Bignonia*, and a Fern *Lygodium Forsteri*, furnished the Rev. G. Henslow with material for remarks on climbing plants, how the method of climbing by stem-twining was a modification of the property of "circumnutation" or "bowing around," a property of growth, and which occurs in all parts of the plants, but is variously utilised according to the nature of the organ; whether it be the radicles of seedlings to enable them to find line of least resistance for penetrating the soil, or runners to aid them in surmounting obstacles, or stem-twiners as in the above plants for climbing. The lecturer called attention to other methods of climbing, as by tendrils in *Bignonia*, Vine, Pea, &c., pointing out that here, as is universally the case, Nature can utilise various organs for one and the same purpose wherever requisite.

Bud-variation furnished matter for remarks in reference to a specimen of *Primula sinensis*, a double pink form, called "Lord Beaconsfield," on which had appeared a truss of double white flowers, which had been called "White Lady." The lecturer alluded to the *Chrysanthemum* as a plant particularly liable to sport; many new varieties having been thus raised before seed was procured (about the year 1835) from that plant. He alluded to the fact that Peaches will sometimes bear Nectarines, and *vice versa*; and that even a single fruit may be half Peach and half Nectarine. Variegated foliage, as in a Laurel exhibited, may occur on an otherwise green plant, and it was the business of the horticulturist to fix these sports and establish them. The lecturer then alluded to sporting from seed as another method of raising new forms; this was illustrated by seedling Azaleas exhibited. It often happened that seedling sports were not constant when again sown; but a variety of Chinese Primrose of crimson colour called "Dr. Denny," had proved to come true by seed with Mr. Cannell, who exhibited a specimen, who also received a first-class certificate for a fine pale pink-white form "Princess of Wales." A new variety "Holborn Gem," with an approximation to a blue tint was also similarly certificated. It was sent by Messrs. Carter & Co.

As a remarkable illustration of a plant's power to resist what might be deemed injurious conditions, the lecturer remarked that *Lapageria rosea* grows near arsenical and copper mines in Chili, where other plants cannot thrive. He alluded to the fact that several plants imbibe salts of zinc (*Viola calaminaria*, &c.), copper, &c.; but whether these metals are of any physiological value or merely accidental had never been determined.

AN AMATEUR'S HOLIDAY.

(Continued from page 12.)

PROMINENT among the successful competitors at the West of Scotland Pansy Show last season, at the International Exhibition at Manchester, and at the September Show in Glasgow, stood the name of Mr. John Sutherland, Victoria Nursery, Lenzie. At Manchester the Lenzie Pansies, Show and Fancy, carried off the first honours; and at Glasgow, among other successes, Mr. Sutherland's twelve table plants secured the highest award. I had the pleasure of meeting him at the last Exhibition, and the cordial invitation then given led me to make my next visit before leaving the West.

Lenzie lies about six miles east from Glasgow, and consists mainly of the residences of gentlemen engaged in business in the city. The first thing to be noted in the Victoria Nursery was the extensive collection of Pansies, embracing all the best varieties in cultivation. Mr. Sutherland's stock had suffered very little, if at all, from the 'disease' (?) which had wrought such havoc elsewhere; and no one could wish to see cleaner and healthier-looking plants than those forming the large provision of twenty thousand for next supply. I found, as was to be expected, that these embraced the newest varieties in commerce. Mr. Sutherland also stood first

for French Marigolds at Manchester. His strain is evidently first-rate, and the display of these was evidently a treat to see. I found also a large stock of the leading varieties of Carnations and Picotees.

I have scarcely ventured to refer to the houses of other establishments. Here I have a note to assist me. In the stove house were fine specimens of Palms, such as *Cocos Weddelliana*, *Calamus ciliaris*, *Geonoma gracilis*, *Thrinax elegans*, *Arecas* and *Kentias*, *Anthuriums*, *Aralias*, *Aspleniums*, *Bougainvilleas*, *Cibotiums*, *Crotons*, *Davallias*, *Dipladenias*, *Dracenas*, *Ixoras*, *Lomarias*, and many other varieties of such plants. I saw also well-grown Ferns, including *Adiantum farleyense*, *A. gracillimum*, &c. In the greenhouses were fine specimens of *Azalea indica* and *Camellias*, a very select lot of *Ericas*, and a fine selection of New Holland plants. I hope to make a better acquaintance with the Victoria Nursery, especially with the departments in which I take more interest; and have to thank Mr. Sutherland for the very kind encouragement he gave me to do so.

In the forenoon I went to Helensburgh, with which are associated the recollections of former pleasant hours, and sad memories of the loss of a friend with whom these were mainly spent. My chief object now was to visit Mossend Nursery. An hour was too short a time to see Mr. Robertson's nursery to full advantage. I had, however, a run through part of it. I saw his Roses, the large and promising recently-budded stock; and that on which he was then engaged to supply the increasing demand for Roses on their own roots. Here, too, I observed another lot of the fine French Marigolds which abound in the west of Scotland, as evidenced at the show in Glasgow and elsewhere. What I was most desirous of seeing was Mr. Robertson's *Gladioli*. His collection was by far the most extensive and select I had met with during my journey, and contained many of the finest of both Mr. Kelway's and the French varieties. They were in capital health, but the unfavourable season had thrown them late, comparatively few being in bloom, and the majority not sufficiently advanced to afford the hope of their being so that season. I recognised in flower *Shakespeare*, *Brongniart*, *Brennus*, *Camille*, *Le Vesuve*, *L'Unique*, *Violet*, *Venus*, and a few others. Expressing surprise at so few having more than one stem, Mr. Robertson informed me that he had, before planting, divided the greater number of the corms. I had in your columns heard of this being done, but had never seen a case where it had been practised. After the success of it in Mossend Nursery I shall not hesitate to adopt it in future. It might have been well had I done so last season. But of this melancholy subject more, perhaps, anon.

The time I had allowed myself on leaving home had now expired. Duties demanding attention caused me to reserve a visit to a well-known favourite abode of Queen Flora in the East for another day.

—A NORTHERN AMATEUR.

(To be continued.)

SILKWORMS AND SILKWORM-REARING.—5.

ALTHOUGH our authorities upon the subject of silk culture in Britain are not agreed whether silk produced and perhaps reeled here will attain a commercial importance by-and-by, it is admitted that our temperate climate is suitable for obtaining good *grain*, such being the technical name applied to the eggs by silkworm breeders. Amongst the various difficulties that beset English experimenters two are prominent—one at the beginning, one at the close. The eggs very frequently incline to hatch out before the Mulberry is in leaf: unless other food be given it becomes necessary to retard the development of the germ by chilling the eggs, and we have to be cautious lest they should be checked too much. Again, when the cocoons have been successfully spun they must be wound; to do this properly the threads of several cocoons ought to be joined into a single thread—a matter of some nicety, which has as yet been hardly attempted amongst us. The ordinary silk-winders sold at shops are mere toys, and of no use in helping us to turn the silk to good account. This fact, however, is decidedly in favour of English silk culture, that the worms well managed are less subject to diseases, apparently, than they are abroad. It has therefore been suggested that the English breeders of silkworms should, as a rule, rather devote themselves to the production of grain to supply other countries than endeavour to get silk that would be saleable. Parcels, mostly of moderate size, of the eggs laid in this country have been favourably received on the continent, and also transmitted to more distant regions; for in the general way those who rear silkworms for profit before the cocoons are reeled destroy the enclosed pupæ, a plan which if not imperatively necessary is yet found desirable. A proportion of each brood may be set apart for breeding, but some make a rule to obtain fresh supplies of eggs yearly from foreign sources. There may not be harm arising out of the practice of "breeding in-and-in" that has been represented, but it is

of advantage to "cross" judiciously by associating male and female moths that are of different extraction.

We have already noticed the peculiarity of the circumstance that the Mulberry seems to attract no caterpillars save those of *Bombyx Mori*, and that in every clime the species thrives upon the silky leaves which have such a natural appropriateness. Some have asserted that finer silkworms can be reared upon the leaves of the wild Mulberry in preference to the leaves of the tree when under cultivation. Having had no opportunity to try the caterpillars with foliage of the former I cannot speak positively, yet I am inclined to question if there is this supposed difference. It is, however, quite likely that the leaves of Mulberries too thickly planted or insufficiently drained will disagree with the digestive organs of some silkworms; and there may be developed a more vigorous race when the worms are allowed to range upon the trees, either wild or cultivated, foraging for themselves, should the climate admit of their living exposed. It is rather common for English breeders who are experimenting to a small extent to feed the young brood with the leaves of Lettuce until those of the Mulberry are sufficiently expanded. Lettuce leaves fade quickly, and their decomposition proves injurious to the worms unless the renewal of them is careful and frequent, but I have seen many good examples of the species that were supplied with Lettuce during the earliest age. Mr. F. A. Edwards reports that he has kept these worms for a succession of seasons entirely on Lettuce; in that case I presume the silk produced would be poor. Amongst other leaves that have been given with varying success are those of the Cherry, Black Currant, and Dandelion: the latter seems too succulent.

If we wish to examine the modes that have been pursued for a long period by silkworm rearers who have made the employment remunerative we naturally turn to France, where in many districts the peasantry have, during more than three centuries, been engaged in producing silk for the market, with unavoidable fluctuations arising from bad seasons or the state of political affairs. The most serious interruption, affecting not France alone, but chiefly, arose about 1850 from an imperfectly understood disease, which destroyed multitudes of worms for many years subsequent to that date, causing severe losses to broods, and which has of late years been happily checked. A people much inclined to change in some things, the French are yet strongly conservative in others. Those observers, therefore, who have from time to time suggested improvements applicable to the rearing of silkworms have not always got them readily adopted. Doubtless there must be occasionally a difficulty in reconciling theory and practice, and some very successful rearers of silkworms have not followed the rules which naturalists would have laid down for their guidance. It is somewhat similar in horticulture, where people may be a trifle too scientific. With the silkworms, moreover, there is to be considered differences of locality and of large or small establishments.

On the supposition that a house is being erected for the purpose, the French breeders believe that it should have its windows east and west to secure an equality of influence from the sun's rays. The first floor is the best part to devote to actual rearing. The ground floor would contain a room for keeping and hatching eggs, another for storing leaves when needful, also a chamber by means of which the rearing apartments can be warmed and ventilated. But in the small establishments so common throughout the Cevennes silkworms have for many years been reared in rooms upon the ground floor, such rooms having an open fireplace at one end, while opposite to that is another room separating the breeding chamber from the outer air, and by the admission of currents any needful changes of temperature can be brought about; and whatever be the country where we are rearing silkworms plenty of air is requisite, while chilling is avoided. Of so much importance is cleanliness, that the masters of establishments are rigorous in enforcing this both as regards person and attire amongst those women who are called the "worm mothers."

In the rooms appropriated to the silkworms in their successive stages of growth there is no need for precautions against any propensity to wander, so stationary are they inclined to be when food is steadily supplied. For convenience in feeding and nursing they must be divided into parties or companies, and it is usual to place along the room either racks or small tables, allowing space round these, so that they can be approached on any side. Where there are racks they are placed above each other, containing frames or *canisses* made of reeds, with a border to prevent the worms from slipping off. The frames or tables must have sheets of paper to form the resting place for worms and leaves. It is a general belief that loud noises are objectionable in or near silkworm establishments.—J. R. S. C.

JAPANESE CHRYSANTHEMUMS.—Will anyone tell me the names of the seven original varieties of the above as introduced by Mr. Fortune

in 1862? Are they still grown? Where may they be obtained? I am anxious for the names and addresses of all *bonâ fide* raisers of Chrysanthemums from seed, and desirous of obtaining seeds of Japanese varieties by purchase or otherwise.—EBOR.

HARDY ROSE CULTURE.

(Continued from page 15.)

DISCUSSION.

MR. JOHN G. BARKER said that his experience in Rose culture had differed somewhat from Mr. Spooner's. Six years ago he made two beds of Hybrid Perpetuals, for which he dug out the soil to the depth of 18 inches, and replaced with a compost of equal parts of well-decomposed sods, horse manure, and cow manure. The varieties were selected from the Roses exhibited in 1872 and 1873. There were thirty plants in each bed, on Manetti stocks. The soil was naturally moist, and they were planted so as to root from the grafts. They made a most astonishing growth the first year, and the next spring were pruned severely, and the small wood was thinned out in summer. They made shoots higher than his head, which, when signs of growth appeared in spring, were pegged down to the soil. These two beds were solid masses of flowers; though not of the largest size, there were legions of them. He thought this the most satisfactory result, when, as in the present case, they were for the benefit of the public. Afterwards he made two more beds in the same way, first making diagrams and marking all the varieties on them, for the instruction of the visitors to Pine Grove Cemetery, Lynn, of which he is superintendent. He goes over the bed with a scuffle hoe every two or three days; this keeps the ground moist, and the surface does not bake after rain as it does when raked. He adopted this method of culture because he is obliged to choose the cheapest way. He pegs down the shoots after pruning off 12 or 15 inches of the end, and never covers them. Madame Plantier is one of the white June Roses, but needs a little covering, which is a good investment, for it forms a mass of flowers. He has two bushes of the old-fashioned Red Moss Rose in soil which has not been enriched for eight years, but they form masses of flowers.

Mr. Charles M. Hovey said that for sixteen consecutive years he took prizes for the best thirty hardy June Roses. Many of the old Roses of twenty years ago still take the prizes. Bon Seline, Maréchal Niel, Général Jacqueminot, and John Hopper are all good, but have their defects. The best part of Mr. Spooner's paper is that in which he points out what have not succeeded with him. The speaker was the first to import the Madame Plantier, and had found it perfectly hardy, though it may be well to cover it in very exposed situations. The two things which the Rose requires are the pump and the manure heap. Mr. Hovey thought the best English cultivators preferred Roses on their own roots. All plants, with rare exceptions, grow best on their own roots. We must resort to stocks to rapidly increase the plants of varieties. There are some bad results from grafted Roses—among others, suckers from the stock, which gain the ascendancy over the graft. He has a row of Hybrid Perpetuals, 6 or 7 feet high, on their own roots. In selecting Roses we should choose kinds which will stand our hot suns. Mr. Hovey spoke in favour of the class of Roses known in England as "decorative Roses"—hardy, vigorous, and abundant-flowering kinds; just what everybody wants, and not simply Roses for exhibition.

Mr. William C. Strong had enjoyed Mr. Spooner's essay. He was surprised to hear such a young and progressive member of the Society as Mr. Hovey opposing the introduction of new varieties, particularly since the wonderful progress of the past few years. In the English prize lists there are few varieties of more than ten or twelve years' standing. It is a laborious process to weed out the inferior varieties. He dissented from the views of those who thought it needful to keep fertilisers to rot down; much ammonia is lost during this process. The Rose is a gross feeder and will take fresh manure; moreover, it wants a heavy soil, and old compost is light and makes the soil light. In making a Rose border in his house he used green cow manure; the mixture laid two or three days and was turned over, and Manetti stocks were planted in the border in March and budded in June, and ripened 8 or 10 feet of wood. He had seen young roots of the Manetti stock strike into fresh cow manure. He would prefer fresh manure to old, but if he had had time when he made his border, would perhaps have turned it over a little more. He dissented from Mr. Hovey's views in regard to stocks; weak growers are vastly benefited by grafting. Tea Roses are benefited by being grafted on vigorous stocks. Such stocks impart a vigour to weak-growing kinds which they can never get on their own roots.

Mr. John B. Moore said that he could find no fault with the directions given in Mr. Spooner's paper. People find in books directions to make Rose borders 4 feet deep, of half manure, but the speaker thought he could do better by following Mr. Spooner's method. When he (Mr. Moore) began cultivating Roses, it was in a light soil which absorbed too much water. He objected to clay to make it more retentive, and preferred the strata of very fine consolidated quicksand found in sand pits. They are so hard as to require a pickaxe to break them up, but if spread on the ground they dry and crumble, and when worked into light soils make them permanently more retentive. He agreed with Mr. Strong that Roses are gross feeders; they cannot have too much manure. Mr. Hovey thinks that

Roses are best on their own roots, but a large proportion will grow stronger on Manetti stocks. The suckers are so unlike the grafts that any but the most stupid person can distinguish them, and fifteen minutes will suffice to remove them from a large bed. He (Mr. Moore) plants his Roses in rows 4 feet apart; walking between the rows compacts the earth so that it will not absorb rain, and instead of a rake or scuffle he uses a French cultivator, drawn by a horse, to stir it. He earths up the plants in autumn. Baroness Rothschild kills down to the earth line. Madame Lacharme is worthless except to collect Rose bugs; they must be shaded; the bush will grow, but fails to give good flowers. In answer to an inquiry how new Roses differ from the old, Mr. Moore said that many are more beautiful; and while few of the old Roses bloom later than June, with the new ones we can have flowers from June to October; and a few Roses in August, when they are scarce, are more desirable than many in June. He has three hundred varieties, but does not propagate above seventy-five. One will have mildew; another may be beautiful but fail to grow; another may do both. Coarse strawy manure will lighten the soil more than old compost, and therefore should not be used. It is also objectionable as a covering, for if the wood is not well ripened it is apt to kill it, but after heaping up the earth 10 inches high around the bushes in autumn, he covers it with manure to prevent it from freezing and thawing, and throws coarse meadow hay between the rows. Cold weather will not hurt them. There are two sides to the question of ammonia escaping from the manure heap; it is not always ammonia that we smell there. He did not approve of rotting down manure generally, but did not believe in any great loss in doing it.

Mr. Joseph H. Woodford said that though he had had but little experience he had carefully observed the methods of others. He thought Mr. Moore's method of protection best. The soil should be hauled away from the plants, and the manure in the trenches should be forked-in in the spring. Most of the tender varieties may be preserved in this way. The speaker had seen a similar method used by Mr. John C. Chaffin, one of the best Rose-growers. He sifted long straw among the bushes, so as to afford partial shade in March and April, having found that the hot sun at that time spoiled the buds on the sunny side. Mr. Woodford read the following list of thirty Roses, noted by him as the best in the exhibition of 1880—

Alfred Colomb, Caroline de Sansal, Charles Lefebvre, Comtesse d'Oxford, Dr. de Chalus, Dr. Sewell, Duc de Montpensier, Duke of Connaught, Dupuy Jamain, Etienne Dupuy, Exposition de Brie, Ferdinand de Lesseps, Fisher Holmes, General Washington, Horace Vernet, Jean Souper, La Rosière, Mabel Morrison, Magna Charta, Mdle. Marie Rady, Mme. La Baronne de Rothschild, Mme. Lacharme, Mme. Prosper Langier, Mons. Bönienne, Mons. E. Y. Teas, Mrs. Baker, Pierre Notting, Sir Garnet Wolseley, Thomas Mills, Vicomte Vigier.

Mr. Hovey said, those who grow Roses for exhibition must proceed differently from those who grow them for their general effect. We do not want a few scattering plants of Rhododendrons or Pæonies—we want masses of them, and we want a feast of Roses, even if every bloom is not up to the standard of perfection. Two or three plants of annual Roses in his grounds, full of flowers, attracted more attention than any others. These are the kinds for those who wish to cut bouquets of Roses. La Reine is not excelled by any other Rose of its colour. Niphetos is in all the stands of twelve Tea Roses. With one shoot of ten buds of a new Rose we can make ten plants by budding, but the stocks will sucker and rob the grafts, and when we can get them on their own roots we should endeavour to do so. In Europe standard Roses grafted high have gone out of fashion.

Mr. Wm. Gray, jun., being called on by the President as the "champion Rose-grower," said that he understood the object of the meeting to be to get lists of the best Roses, but this was impossible at so short notice. We must grow many kinds for many years before we can decide on the best. In 1874 he thought Mdle. Marie Rady the best Rose of the year, but he has not had one in a prize stand since. Pierre Notting was fine, but he has not had one in his prize boxes for years. The only object in testing the new Roses sent out from year to year is to ascertain those worthy of cultivation here, which are but a small proportion of the whole. Those of 1877 have not been tried long enough, but are more promising than those of several previous years. If we make lists of Roses which can be relied on we must include many of twenty years standing. Nine out of ten of the new French Roses are scarcely heard of after a few years. He would have his Roses on Manetti stocks, to give them a start, and plant the stocks 2 inches under ground, when they would root from the graft.

Hon. Marshall P. Wilder expressed surprise that so few new Roses had been raised in this country, where, under our bright sun, everything perfects its seed with ease; but we shall do it in the future. Ellwanger & Barry have crossed Hybrid Perpetuals with Tea Roses, and he was glad to hear that Mr. Hovey had done the same. He exhorted all to go on and raise new Roses, and then their names would go down to posterity fragrant with the results of their labours.

Mr. Hovey said that more had been done in this country in the way of raising new Roses than Mr. Wilder's remarks would imply. Beginning with a variety raised by Mrs. Herbemont from the Musk Cluster, which has been one of the parents of all the improved Prairie Roses. The latter were originated by Samuel Feast of Baltimore and Joshua Pierce, at a time which Mr. Wilder would recollect,

when the Boursault was the only climbing Rose. Joshua Pierce of Washington raised fifteen varieties. The Isabella Sprunt is a sport of Safrano, discovered by the Rev. James Sprunt of Kenansville, N.C., some years previous to 1865. Mr. Pentland of Baltimore raised the George Peabody, a Bourbon Rose. Prof. Charles G. Page of Washington raised the Cinderella and others. William Boll of New York raised hundreds, if not thousands of kinds, most of which he sent to France. Among his seedlings were the Washington and Madame Boll. In 1877 came the American Banner, a sport from the Bon Silene. Mr. Hovey said he had thought lately of attempting to raise seedling Roses, but the French are so far in advance of us that he had done little for the last twenty or thirty years.

AMBIGUOUS CONDITIONS IN SCHEDULES OF PRIZES.

As reference has been made to me in connection with doubtful stipulations at some of the recent Chrysanthemum exhibitions (page 573), I hope you will allow me to say a word or two on the subject. Schedules of prizes are frequently framed by gardeners who endeavour as far as possible to make their meaning clear; but notwithstanding all the care that is exercised, I fear the same quotation will apply to the schedules as to Acts of Parliament—that it is possible to drive a "coach and four" through them. Your correspondent evidently did not understand the meaning of the stipulation he quoted, for the very collection which in his opinion ought to have been disqualified was certainly rightly staged; but I am of opinion that the majority of judges would have disqualified the collection to which the chief award was made according to the terms quoted by your correspondent. The Editor has kindly suggested two different conditions which ought to work well, but they may not. I will try to point out the difference in the effect that would be produced by the two modes of exhibiting, taking the "three single blooms to form a bunch" first; by this plan little or no effect is produced even when twelve varieties are staged. While the large-flowering varieties are disbudded to produce larger flowers I have yet failed to find that disbudding the Pompon is of any real service, but on the contrary, in my opinion it detracts very much from the beauty and effect of these miniature flowers, whereas the other way, "three stems as cut to form a bunch," gives a much greater effect to an exhibition. One thing is very certain, that if proper judgment is given (unless the stipulations in the schedule state to the contrary) the person exhibiting three stems of disbudded flowers to form a bunch has a decided advantage over the exhibitor who has pinched off all except three solitary flowers which are also growing on three stems. If Pompons were exhibited in cups on boards similar to the larger flowers only one flower would be required, but as it is the custom (and a very wise one) to exhibit them some 4 to 6 inches above the board with their own foliage, framers of schedules would do well to stipulate for flowers that are grown without disbudding.

The Editor says, "A number of stems containing single flowers tied together would form a bunch," and so they would, but it would be very unfair to allow any exhibitor to stage a "number." Now it is three disbudded stems contesting against the same number of stems not disbudded; then it would be three against perhaps a dozen or more tied together, which would not be fair.

Local Chrysanthemum societies are not alone in failing to make their meaning plain. In the Royal Botanic Society's summer schedule, under the head of "Cut Flowers," I find classes for twenty-four trusses, hardy herbaceous flowers; twenty-four trusses, stove and greenhouse plants; and twelve trusses of Orchids. I know an instance last summer of a firm attaining, I think it was, the premier position for hardy herbaceous flowers at the above Show, and in every instance several stems of flowers were bundled together as is the usual custom, but a week afterwards when exhibiting at another show for the best twenty-four spikes or trusses of hardy, herbaceous, and perennial plants they were disqualified. What is the distinction between twenty-four trusses, or twenty-four spikes or trusses of hardy herbaceous plants? We often see a schedule stipulating for twenty-four trusses of Zonal Pelargonium blooms, and as many as three trusses of each variety placed together are shown. Surely this must be seventy-two trusses, but it is allowed as twenty-four merely because it is the custom to do so. I remember once seeing a collection of twenty-four Roses, distinct, disqualified because the terms of the schedule required twenty-four single blooms with leaves as gathered, and a bud on one had expanded after cutting, with the heat of the day.—J. W. MOORMAN.

[The words which our correspondent has quoted and criticised were obviously not submitted by us as a model stipulation, but merely as explanatory of the term a "bunch." The stipulations we suggested are placed in inverted commas at the foot of our note on page 573, December 22nd, 1881—namely, either "three

single blooms to form a bunch," or "three bunches of flowers as cut, number of blooms not limited."—ED.]



FRUIT HOUSES.

Vines.—Early Vines will now require great care in ventilating the houses, taking advantage of every favourable opportunity; at the same time avoid admitting cold currents of air. Rather allow the temperature to rise somewhat higher. When the external air is very cold nail some netting over the openings of the ventilators so as to lessen its rush into the house. Disbud and tie down the shoots before they touch the glass, and when stopping allow as many joints beyond the bunch as will insure an even supply of well-developed foliage. Due regard must be had to the extension of the lateral growth, it being of great importance that the principal leaves have full exposure to light and air. Very early Vines in pots will require the berries thinning when the size of small peas, and all superfluous bunches removed, supplying tepid liquid manure liberally, and dressing the surface of the soil with rich material. Early houses, as the Vines come into flower, should be kept a few degrees warmer, and a little drier as the flowers open, avoiding overcropping, removing superfluous bunches early. Inside borders will need tepid water applied to them whenever requisite in quantity sufficient to moisten them thoroughly to the drainage. Do not allow the fermenting material on outside borders to decline in heat, but that inside may be allowed to cool and be gradually removed, the border being surfaced with horse droppings, but not too fresh, for the ammonia arising therefrom will be too powerful for the foliage. Damp the Vines and floors in houses recently started, keeping the temperature at about 55° artificially, and 60° to 65° by day from sun heat.

Proceed with pruning and dressing Vines in succession houses as the fruit is removed. Remove the loose bark only, and after washing with soapy water dress with an insecticide, the house being thoroughly cleansed previously. Remove the loose surface soil and supply fresh loam with which has been incorporated a sprinkling of bone meal and wood ashes, keeping the house well ventilated except when frosts prevail. Late Grapes should have a mean temperature of 45°, ventilating on fine mornings, with a little fire heat, keeping the house close when the weather is damp, examining every bunch occasionally, and remove all decayed berries. Well-ripened bunches of thick-skinned Grapes may be removed to a dry room kept at a temperature of 40° to 45°, where they will keep quite as well as if on the Vines, cutting the bunches with as much wood attached as can be spared, and placing the ends in bottles filled with soft water and a piece or two of charcoal in each; this will admit of the Vines being pruned and a rest being given before starting, which should not be delayed later than early March.

Pines.—Plants which completed growth early last autumn and have been treated as advised in our autumn calendars under this head are now showing fruits, and these will ripen at a time when they are most valuable. When the fruit is fairly started they may be assisted in favourable weather by increased heat in the daytime, allowing the temperature to rise to 80° by sun heat before ventilating, maintaining the temperature at 85° or 90°, and closing at 85°, the night temperature being advanced to 70°, and 75° by day from fire heat, but if the weather be severe the artificial heat must be 5° less. Supply moisture by damping cool surfaces, but damping heated surfaces or between the plants must be avoided. The heat at the roots should be kept steady at 80° to 90°. Examine the plants about once a week, and water those requiring it liberally with liquid manure at 85°. Let the night temperature for fruiting plants range from 60° to 65° at night, 65° to 70° in the daytime artificially, and 75° to 80° from sun heat, ventilating slightly when sunny, and taking advantage of every opportunity to close with a little sun heat. Other

stock should be kept slowly growing in a night temperature of 60°, falling a few degrees on cold nights, 60° to 65° in the daytime, with a few degrees rise from sun heat, keeping a moderately dry condition both at the roots and in the atmosphere for the present.

Figs.—To obtain ripe Figs about the middle of May forcing planted-out trees should be commenced at once, the temperature being kept at 50° at night and 55° in the daytime from fire heat, and 60° to 65° from sun heat, ventilating freely at that temperature, and syringing the trees in the morning and afternoon in bright weather. The border, if not moist, must receive a good soaking of water at 85°.

The Figs in pots started in early December have now formed young shoots, and the sturdier they can be kept by exposure to light and air the greater will be the likelihood of a satisfactory early crop. The night temperature should be kept at 55° to 60°, and 60° to 65° by day from fire heat, and 70° to 75° from sun heat. Water as necessary with tepid liquid manure, and replenish the fermenting materials in the bed so as to keep the heat steady about the pots at 70° to 75°. Syringe morning and afternoon, and when the shoots are 5 or 6 inches in length the points should be pinched out.

Cherry House.—If the house was closed about the middle of last month fire heat may now be applied to maintain the night temperature at 40°, which should not be exceeded, and 45° in the daytime artificially, advancing 5° to 10° or more by sun heat with full ventilation. Attend to watering the border as necessary, also those trees in pots.

Cucumbers.—Maintain a night temperature of 60° to 65° and 70° to 75° by day, advancing with sun heat to 80° or 85°. The external air being mild a little ventilation may be given at the top of the house when the temperature inside is over 75°, but if the air outside be cold and cutting it is better to allow the temperature to rise a little more, as a few degrees excess from sun heat will do no harm provided the atmosphere is not too dry. Trim the plants at least twice a week, removing all weakly and exhausted growths, reserving as much of the young bearing shoots as can have due exposure to light, stopping them one or two joints beyond the fruit. Young plants coming into bearing should not be overcropped. Assist them by removing the tendrils and staminate blossoms, and with copious supplies of liquid manure about twice a week; as the roots protrude add a little fresh loam in a lumpy state and previously warmed, making it moderately firm. Damping the floors about 8 A.M. and 2 P.M. will be sufficient for the present. Seed may now be sown for raising plants to place out at the end of next month or early in March. Where there is no suitable house for the purpose, the supply of fruit having to be relied on from dung-heated pits or frames, a bed of fermenting materials that will accommodate a one-light or two-light box should now be made, the materials having been previously prepared. The bed should be about 18 inches wider than the frame, and will need to be about 5 feet high at back and 4 feet in front. When the heat has risen level the surface and place in a few inches depth of sawdust, spent tan, or other loose substance as plunging material. The same bed will serve for raising Melon plants for pits and frames.

PLANT HOUSE.

Forcing House.—The earliest Roses in a little moist heat without pruning will soon afford flowers, the best varieties for this purpose being the Tea-scented—as Niphetos, Souvenir d'Elise, Devonensis, Madame Falcot, Monsieur Furtado, Gloire de Dijon, and Duchess of Edinburgh. These should be followed by another batch of plants prepared in the ordinary manner, both of Tea-scented and some of the freest-flowering Hybrid Perpetuals, for affording a succession of blooms. Place the plants in a temperature of 50° by artificial means, and damp them occasionally, ventilating upon every favourable opportunity. Regularly introduce to the forcing house more Hyacinths, Narcissus, and early Tulips, assigning them a position on a shelf within a short distance from the glass to keep them sturdy. The other bulbs should not be allowed to remain too long plunged in ashes, or they may become drawn. When the pots are well filled with roots, and the tops have pushed about an inch, they should be removed to a cool house, excluding the light from them partially for a few days, when they may be placed near the glass. Lily of the Valley according to the demand must be placed in heat. Single

crowns will need bottom heat, and must have light excluded until the stems are as long as required, and then gradually expose them to light. Clumps, imported or home-grown, should be brought on more gradually, a temperature of 50° to 55° being sufficient to commence with, as when placed in a strong heat at once they do not start freely, and when placed in bottom heat the flowers appear without leaves. More *Deutzias*, *Hoteia japonica*, *Dielytra spectabilis*, *Staphylea colchica*; *Azaleas*, Indian, *pontica*, *mollis*, and Ghent varieties; *Lilacs*, *Kalmia latifolia*, and *Pinks* may be placed in the forcing house or other structure so as to keep up the supply of flowers.

Stove.—The tuberous *Begonias* from their graceful habit and bright flowers are useful for arranging with other plants in the conservatory in early summer. Bulbs of those now potted and placed on shelves in the stove and carefully watered until growing freely will come in very acceptably. Be careful in watering *Hoya bella*, as it is impatient of too much water at the roots. For hanging baskets this is one of the most useful, and for cutting one of the most chaste flowers, particularly for buttonholes. *Anthurium Schertzerianum* having completed its growth should be allowed rest, keeping it in a temperature of about 50° at night for about six weeks, which will greatly benefit the plant, withholding water, but not to the extent of causing shrivelling. A few *Gloxinias* now started will be useful for producing early flowers, growing them on shelves near the glass. Roof climbers, not being winter-flowering, should be cut well back, the growths retained being well thinned, so as to admit plenty of light to the plants beneath. Keep the soil dry to induce rest and the further ripening of the wood.

THE BEE-KEEPER.

BEES IN TROUBLE.

AS it is true in matters moral as the old saw tells us, that "by the faults of others wise men correct their own," so, in matters practical, mistakes and misfortunes may be made by the heedful their truest teachers, and so be actually converted into advantages. It is with this idea that I relate to all an old experience, although my special object is to advise a correspondent who has had the annoyance of recently receiving two stocks in frame hives with the combs more or less broken from their attachments and thrown down in confusion. The suggestion our correspondent makes of cleaning them out and starting again we feel sure would be, if carried out, almost certain to lead to utter and irretrievable ruin, while we think from what we gather patience will be in the end rewarded by recovery. In the early days of our bee-keeping we found one biting November morning a wire poultry fence strangely mis-shapen, and learned that a disturbed burglar pursued by a policeman had in his flight tilted into it in the gloom, and had in consequence been captured. A further search revealed a straw skep (upon which our uninvited visitor had jumped in getting over the wall) inverted upon the ground with chilled bees showing upon some of the combs, while now and again two or three buzzed up a foot or more to be immediately driven back by the cold. We were annoyed, and the only course our limited experience admitted of was to put the floor-board over the skep mouth, carefully bring it into position and place it on its old stand. In doing this the ominous sound of falling combs was distinct. It was but with faint hopes that we left our bees to rectify if possible what we were powerless to amend. Soon chips and gnawings of comb began to appear at the hive mouth, showing at least that vitality remained, and food was given while the bees would take it. Early in the spring we made an examination, when we discovered that the combs had gone down very nearly flat, that the one upon the floor-board had been grooved and channelled on its under side so as to remain standing as it were upon a set of pillars, and that in this manner sufficient passage way had been regained. The adjacent faces of the other collapsed combs had in like fashion been tunnelled away, by which their contained stores had been reached and appropriated, while comb-building had recommenced from the roof. I bored two holes through the skep top, through these passed string in loops, which I placed round the best two combs, drawing the latter up into position. Some time after, in nearing this hive I saw what appeared to be a black snake half out of the mouth of it, stretching its body upwards and forwards, and waving about wildly in every direction.

A little nearer the snake resolved itself into a dense mass of bees, which were clinging on to every portion of the surface of my string now torn to shreds, but still not quite released, for the struggles of these model workers, although wholly detaching the string from the combs, had jammed it at the side of the hive door. *L'union fait la force* was the motto clearly, and I am sure this check would only with their perseverance have been a temporary one, for, despite their overthrow in November, they had fully recovered prosperity in May.

If our correspondent's queens live his bees may still pull through, six weeks having now elapsed since their disaster. We strongly counsel barleysugar, feeding with flourcake a little later until the opening spring makes it possible to deal with them amid surrounding circumstances not wholly adverse. When the time arrives for remodelling, then foundation can be given with great advantage, but no tin separators are required as our correspondent suggests. In using section boxes separators are needful, because the bees are likely to extend the thickness of the comb of one box into another; but in the hive where breeding is going on, the position of the midrib of the comb being settled by the placing of the foundation, the faces of the combs become of necessity regular, for the sealing of the grub is always at a uniform distance from the midrib, and the whole width of the comb is scarcely an inch. In warmer weather, then, such comb as may still be worth it may be by tapes fixed into the frames and to others foundation may be supplied, when with the fond attention that the unfortunate seldom in good hands fail of receiving, the trouble will, let us hope, soon be overpast, and the busy hum grow stronger with the strengthening sunbeam.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

BEE-KEEPING FOR PROFIT.

PROFITABLE bee-keeping is not now carried on as much as it will be when bee-keepers are in possession of more practical knowledge on the subject. It is a business that needs a great deal of study, and considerable physical as well as mental ability to carry it out with profit. The worker bees, the queen, and the drone should be well understood in all stages of development, and the nature of each class the bee-keeper should be thoroughly familiar with, in order that he may start on the sure road to success. There are times when caution should be observed in handling bees, and the when and why should be known, and not guessed at.

Managing bees for study and curiosity is one thing, but making money out of them, year after year, is quite another thing. Keeping bees for a little table luxury is often very expensive, as most classes of this kind overdo the matter, and kill their pets by too much attention. Keeping bees on a large scale, with a vague knowledge of management, is something like a large farm poorly managed—considerable expense and small income.

But either bee-keeping or farming on a large or small scale will and does pay those who have the brains to comprehend the situation, and make all the conditions favourable to success. Bees need more care than the average number of keepers are in the habit of giving them. There are many different cares to attend to, and the neglect of one might prove a loss. Good white honey, well sealed, should be left in the brood-chamber to last them the year round; otherwise, if they go into winter quarters with late dark honey unsealed the honey is very apt to sour and give them the dysentery, and they die of disease. Worker combs should be kept in the middle of the hive as much as possible, and all drone comb placed in the upper storey. A good colony should fill both lower and upper storeys of the hive by June in order to obtain the greatest possible amount of honey. Feeding a little liquid honey from the middle of April till June will assist in populating a hive early enough for the honey flow. Swarming means increase of the apiary, and that does not mean honey. If there is plenty of forage, and the bee-keeper has help, without too much expense, the increase of the apiary will fill the measure of reasonable expectation. The prevention of swarming means honey. Now the point, plainly stated, is this: Which will bring us in the most money, honey or bees? If a colony of bees having surplus honey from the upper storey will bring as much money as their increase when run for increase, then which course will the most surely bring us profit? From past experience I would run for honey, because the demand for honey is on the increase. Bees are only wanted for honey and wax, and honey and wax only have a commercial value, while the value of bees is limited to the producing classes only, and whether there will be a demand depends entirely on unforeseen circumstances.

Success in this business depends largely on the queens. Old queens should be replaced by young ones whenever they cease to

be prolific. With the practical bee-keeper rearing queens from inferior mothers is always avoided, for reasons that good and prolific queens only are profitable. The real value of good queens is hard to over-estimate, while poor ones are worse than useless. Queens can be introduced at any time during the season, but more successfully during a good honey flow. Good queens are known by prolificness and the vigour and activity of their progeny, and are not limited to any particular race of bees, a mixture of the different races being desirable.

On the supposition that our hives are stocked with good queens, and that at the end of the season we have a large crop of honey, the next problem is successful wintering. Several modes have been practised, of which many have been quite successful. Yet the past long cold winter has demonstrated that in the northern States no mode of wintering is proof against loss. Some of you may inquire, What is the best method of wintering? To this I would say, that it is rather delicate to assert any one method as the best mode. I have always wintered mine in a bee-house made for the purpose. It is much drier than a cellar, and, so far as ventilation is concerned, I know the air reaches the bees in a drier and healthier state than in a cellar.

Outdoor wintering and double-wall hives I know nothing of, having never tried them. I have been very successful in wintering so far, and so long as I succeed with my bee-house "I shall let well enough alone." Ventilation is, I think, of great importance while bees are in winter quarters, and upward ventilation is the most essential. In preparing for winter, quilts should never be laid directly on the frames, an open space over the frames is indispensable.

It is the best source by which the moisture can escape and the heat be retained; the bees also can have complete access across the frames; the heat is evenly distributed over the brood-chamber, and the bees will remain on the frame, instead of clustering in small squads between the combs to chill and die. The above reasons, in my mind, are conclusive on this subject.

In conclusion, I would say to those just embarking in the business, Acquaint yourselves with the proper wants of the bees at all seasons of the year, and attend to them; otherwise, better let them alone.—E. PIKE (in *American Bee Journal*).

TRADE CATALOGUES RECEIVED.

Osborn & Sons, Fulham, London.—*Catalogue of Vegetable and Flower Seeds.*

Sutton & Sons, Reading.—*List of New Vegetables and Flowers.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Flower and Vegetable Seeds.*

Stuart, Mein, & Allan, Kelso, N.B.—*Catalogue of Vegetable and Flower Seeds.*

Coventry & Carstairs, 111, Grays Inn Road, W.C.—*Catalogue of Flower and Vegetable Seeds (illustrated).*

E. Wilson Serpell, Plymouth.—*Catalogue of Flower and Vegetable Seeds (illustrated).*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (C. D.).—Our "Greenhouse Manual," price 9d., post free 10½d., will probably suit you; it gives a selection of the best greenhouse plants with concise instructions on their cultivation. (Reader).—The price of the "Cottage Gardener's Dictionary" is 6s. 6d., post free 7s. 2d. (G. B.).—The "Cottage Gardener's Dictionary" can either be had through a bookseller or by post from this office at the prices above quoted. The work on Roses in pots can be had from the author, Mr. William Paul, The Nurseries, Waltham Cross, Herts. (A Scotch Gardener).—The *Irish Farmers' Gazette* is published at 23, Bachelor's Walk, Dublin. As we do not see the other paper we are unable to answer your question.

Stratagem Pea (G. H. B.).—This Pea has frequently been referred to approvingly in our columns. See pages 122, 151, 207, of our last volume. Judging

by your letter you must be either a somewhat inattentive reader or a new subscriber. The numbers referred to can be had from the publisher post free for 3½d. each, if you do not happen to possess them.

Planting Raspberries (Allen).—Your employer is quite right when he says that good Raspberry canes planted now will, if not shortened, bear fruit the first season; and you are quite right in representing to him that if they fruited the plantation may, and probably will, be permanently weakened. We consider the practice of non-shortening newly planted canes a penny-wise-and-pound-foolish system. It is, we are convinced, the initial cause of many failures, and the plan we adopt and advocate is to shorten newly planted canes to about a foot in length. We then insure strong growths from the base and lay the foundation for profitable crops.

Wood Charcoal (Dunkeld).—The sample you have sent to us consists in a great measure of fine cinders and small particles of coal; it, in fact, resembles smithy dust, and contains very little pure wood charcoal. It has little or no manurial value, but might be mechanically beneficial in rendering adhesive soil more porous. We should be glad of such refuse for incorporating with heavy soil, but if applied to light and dry soil it would be more injurious than beneficial. The material would be very useful for plunging the pots of plants in during the summer in the open air.

Market Gardening (J. B., Colchester).—Your letter is so vague that we feel unable to give a definite reply that would be satisfactory either to you or ourselves; but we may say generally that a person who is not practically acquainted with market gardening, both as to growing vegetables and disposing of them, is more likely to lose than to gain by any venture he may make in that direction. There are many market gardeners in Essex who would give you trustworthy information; but you must state your wants more clearly to them than you have to us, or it will be impossible for them to answer you satisfactorily.

Annuals for Spring (S. F.).—The following are hardy and suitable for your purpose—*Silene pendula*, to be sown early in August; *Saponaria calabrica* and its white variety, late August; *Limnanthes Douglasii*, *Nemophila insignis*, and red and white Virginian Stocks, to be sown the last week in August or the first week in September, according to the weather and district. The plants must be thinned out immediately they can be handled, so that each stands separately; if grown thickly they are made tender, if thinly they assume a hardy character. But the plants must not, as you suggest, be "mixed with Polyanthuses."

Serviceable Peas (Reader).—If you sow either *Champion of England*, 5 feet, or *G. F. Wilson*, 4 feet, at the same time as *William I.*, you will have an unbroken supply. You had better also make a sowing at the same time of *Veitch's Perfection*, and repeat, as you propose, sowings of this Pea as often as the plants from former sowings are fairly visible. You may continue this practice until the end of May, then sow *Ne Plus Ultra* until the middle of June for the latest use. We consider this Pea much superior to the early varieties for use in October and November. If you desire to try a newer Pea for sowing with *William I.* for an immediate succession you may sow *Dr. Hogg*, which is very productive and fine, growing from 2½ feet to 3 feet high, according to the soil and season.

Ellam's Early Cabbage (Inquirer).—This is a very good variety, the plants being of dwarf habit and forming hearts early. The distances for planting depend on circumstances and requirements. If we had plenty of plants and but limited space, and at the same time wanted all the green vegetables possible, we should insert the plants a foot apart in rows the same distance asunder, and in the spring, and before the young Cabbages touched each other, pull those from every alternate row and use them as greens or Coleworts, and subsequently remove every other plant from the rows remaining if we either required them or wished to have a number of Cabbages to attain their full size. In this case the permanent plants would stand 2 feet asunder. If you do not require Coleworts for early use you may insert the plants 18 inches apart in rows 2 feet asunder, and there permit them to form hearts; but to have good and early Cabbages during the ensuing season the plants ought to have been planted out two months since. We do not know the price of the book to which you refer, as we have not seen it advertised. You can obtain the information from the publisher.

Cinerarias Dying (A. D., Malling).—You afford us no data whatever whereon to found a reply to your letter. Had you detailed the treatment your plants had received relative to the nature of the soil, the sizes of the plants and pots, the position in which they were grown and now occupy, and of the nature and quantity of the liquid manure (if any) you have applied, it might have been possible for us to have indicated where the fault is that has led to the disaster. We may intimate, however, that when *Cinerarias* are much root-bound when placed in the pots in which they are intended to flower, and when the potting is done late, the plants are very apt to die. We have seen many plants thus potted attempt to live by producing fresh roots from the stem near the surface of the soil, and some plants have been saved by affording suitable compost in the form of a top-dressing. If you can send us a plant we can probably give you a more definite reply.

Grapes Shankling (W. B. H.).—Such varieties as you name grown together in one house are no more liable to be affected with the disease known as shanking than if each variety had a house to itself. What has caused the disease in your case we know not, as you have not supplied us with any information relative to the condition of the Vines, the management to which they have been subjected, the crops they have borne, and the nature of the soil. Certainly we do not think the few roots that have escaped from the inside border to the gravel walk would have caused the evil. Shankling is usually the result of over-cropping; it arises, too, from defective root-action. If the roots are in stagnant or inert soil they cannot obtain the nutriment needed by the crop, and the berries shank. The same results follow if the soil in a border is so dry as to cause the fibres to shrivel. Possibly this may be the result in your case. It is certain the Vines do not obtain the support they need, and when this is the case the effects are the same whether the Vines are planted inside or outside. You must either increase the root-action or decrease the weight of the crop, and so endeavour to restore the health of the Vines.

Free-bearing Apples (J. W.).—The following are suitable for a small garden in Yorkshire—*Stirling Castle*, *Lord Suffield*, *Jolly Beggar*, *Betty Geeson*, *Cellini*, and *Ecklinville Seedling*, which are culinary sorts and certain bearers. *Irish Peach*, *Kerry Pippin*, *King of the Pippins*, *Cobham*, *Cox's Orange Pippin*, *Winter Pearmain*, *Adam's Pearmain*, *Sykehouse Russet*, and *Dutch Mignonne*. The latter nine are dessert kinds. All are healthy growers and succeed on the dwarf stock, hence are suitable for bunches or pyramids. *Warner's King* also succeeds well, not being subject to disease, and bears abundantly either as a pyramid, espalier, or standard, and is one of the finest baking Apples in existence.

Lemon Pippin is of a fine golden colour, and as stated in the "Fruit Manual" a very good Apple either for culinary or dessert use, and is of a fine golden colour. It is not common, but well worth growing.

Riverside Shrubs (Rex).—Either the common Osier (*Salix viminalis*), or the common Alder (*Alnus glutinosa*), will be suitable if cut annually or as needed. A smaller Willow (*Salix undulata*), requires little or no cutting, and the growths are useless.

Seedling Apple (W. C. & Sons).—The Apple is of no commercial value; it is not good enough for dessert, nor large enough for culinary purposes.

Cordon Apple Trees (J. R. C.).—It is quite immaterial which way the trees slant, as you may perceive by observing that the branches of a fan-trained tree succeed alike on both sides of the tree, although they are necessarily trained in opposite directions. For the sake of settling the point train them to the right. Plant them 18 inches apart, removing about one-third of the leader, or that portion not matured, and train them nearly upright the first year. Permit the leader to extend, pinching the side growths where they have produced five or six leaves, and the after growths from these even more closely. As the trees attain size depress them first to an angle of 60°, then the year following to 45°. If depressed in their early stages they do not extend so freely, while they grow too strongly near the base. Unless the growth is very luxuriant and cannot be subdued by pinching, lifting will not be needed; but if a tree grows unusually strongly and does not form fruit buds, lifting is beneficial. We shall publish more on this subject in time to be of service to you. The best work you can obtain is Du Breuil's "Fruit Trees," published by Lockwood & Co., 7, Stationers' Hall Court, Ludgate Hill, London.

Plants for Greenhouse Borders (Preston).—You have prepared the borders well, and many plants will succeed in them with otherwise good management. But it is not possible that you can have nearly so many "flowers for cutting all the year round" from borders alone as if you also grew a number of plants in pots. For instance, you cannot grow such plants as *Primulas*, *Cinerarias*, *Lily of the Valley*, *Spiraeas*, *Pelargoniums*, *Heaths*, *Epacris*, *Azaleas*, and various kinds of bulbs nearly so well in borders as in pots, nor produce such a long supply of the flowers. The *Maréchal Niel* and *Gloire de Dijon* Roses we presume you intend training up the roof, for which purpose they are admirably adapted, and you may safely add to them *Cheshunt Hybrid*. The roof, however, must not be covered, but the growths may be trained up the rafters without injury to the plants below; so, also, might a *Bougainvillea glabra*, *Plumbago capensis*, *Clerodendron Balfourianum*, and possibly a *Stephanotis* would succeed in the temperature you name. Those plants afford an abundance of flowers for cutting, and provided not more than one-third of the roof is shaded the plants below will flourish. The *Tea Rose Homer*, rose and salmon, is very good, and would succeed in your border; so also would *Niphetos*, *Catherine Mermet*, *Marie Van Houtte*, *Madame Falcot*, *Perle des Jardins*, *Innocente Pirola*, *Souvenir de Paul Neyron*, and many other good varieties; *Camellias* in variety; such *Acacias* as *armata*, *platytera*, and *Drummondii*; *Coronillas*, *Cytisuses*, a *Linolia gratissima*; such free-flowering *Fuchsias* as *Rose of Castille*, grown as standards; *Bouvardias*, *Tree Carnations*, *Heliotropes*, *Polygala Dalmaisiana*, *Veronica Little Gem*, *Abutilon Boul de Nieve*, *Begonias*, and such *Rhododendrons* as *Princess Royal* and *Princess Alexandra*, with *Eriostemons*, would be suitable for planting in the border and to supply flowers for cutting. The most useful Fern for cutting is *Adiantum euneatum*, and to this you may add the following—*A. formosum*, *A. farleyense*, *A. serratum*, *A. graellimum*, *A. pubescens*, and *Pteris serrulata*, but all of them must have a moist and shaded position.

Fig Trees in Pots (H. P.).—You do not state the size of the pots, but being young trees from the nursery we presume they will be in 8-inch pots; in which case, and being well furnished with roots, we should shift them into 12-inch or such size as will admit of a couple of inches of soil being placed round the balls. The trees being turned out of the pots, remove the drainage and loosen the sides of the ball with a pointed piece of wood. Drain the pots well, and put in sufficient turfy loam at the bottom, which should be rammed well down, bringing up to the height required, or so that the top of the ball will be about an inch below the rim of the pot. Introduce soil around the ball and ram as firmly as possible up to the level of the ball. The soil may consist of turfy loam with a tenth of old mortar rubbish, or if this cannot be had a sixth of road scrapings, with about a quart of half-inch bones well mixed with every bushel of compost. After potting give a good watering with tepid water and place them in the Peach house, but if there be a vinery it would be preferable. In any case they must have a position where they will receive plenty of light so as to insure stont well solidified growth, upon which the fruitfulness of Fig trees depends. They will need to be well supplied with water during growth, and to be syringed twice daily so as to keep down red spider, mulching the surface of the pots with rich manure, renewing the dressing as required. The shoots made should be stopped at the fifth or sixth joint if more than those are formed, but if you follow the instructions given in "Work for the Week" you cannot fail to secure well-furnished trees for fruiting in pots another season. We should not plant the trees against the back wall of the Peach house unless you can restrict the roots to a border of about 2 feet 6 inches wide and deep, which should be well drained, putting in 9 inches of brickbats or rubble, and over this a layer of turves grass side downwards, then the compost, which may be similar to that advised for potting, ramming it down firmly. In planting disentangle the roots, spread them out evenly over the surface, working the soil amongst them, and cover about 4 inches deep, giving a good watering with tepid water, and mulch over the roots with short manure. The trees should be trained fan-fashion and kept to one stem, removing the suckers springing from the base as they appear. Planted out, the trees need not nearly so much attention as those in pots, and will afford satisfactory crops provided they are not grown beneath the shade of other trees, such as *Peaches* or *Vines*, and have not the wood too crowded.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*E. Leigh*).—Court of Wick. (*W. W. W.*).—2, White Calville; 4, Mannington Pearmain; sorry we cannot name the others. (*O. M. A.*).—1, not known, local; 2, Yellow Ingestrie; 3, Yorkshire Greening.

Names of Plants (S. B.).—1, *Calanthe vestita luteo-oculata*; 2, apparently a poor example of *Zygopetalum crinitum*, but it was so much crushed that it could not be determined with certainty. (*Ebor*).—1, *Sanchezia nobilis*; 2, *Myrsiphyllum asparagoides*.

COVENT GARDEN MARKET.—JANUARY 11.

We have nothing to quote this week except that ordinary samples of Grapes, and heavy and best qualities maintain their value with difficulty.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	1 0 to 3 6	Lemons.....	½ case	12 0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Nectarines....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	½ 100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 6	" dessert.....	dozen	1 0 3 0
Filberts.....	½ lb.	0 0 0 0	Pine Apples....	½ lb.	1 6 2 0
Cobs.....	½ 100 lb.	75 0 0 0	Strawberries...	per lb.	0 0 0 0
Gooseberries....	½ sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	½ lb.	1 0 4 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	" pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0 4 0 6	" Kidney.....	bushel	3 0 3 6
Capsicums.....	½ 100	1 6 2 0	Radishes..... doz.	bunches	1 0 0 0
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzouera.....	bundle	1 6 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	½ lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	½ lb.	0 6 0 0	Tomatoes.....	½ lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

MAKING FIRST-CLASS BUTTER.

THIS is a delicate art, and by some is considered difficult to acquire; that, however, is not the case if care is taken to practically carry out the instructions which have been given by a "working dairy," at the meeting of the Royal Agricultural Society at Derby in July last, and subsequently at other exhibitions, by Mr. G. M. Allender, the Managing Director of the Aylesbury Dairy Company. We often hear that some who have been accustomed to butter-making consider it superfluous to attempt teaching it, as it can be learnt by the dairymaid in a well-conducted home farmers' residence. It must, however, be admitted that a wider school for learning is required by the rising generation, and hence the necessity of an accurate, practical, and scientific teaching is advocated. The strongest argument to show this is that with our present general knowledge and practice really first-class butter is a rarity, and those who live in towns think it a scandal to English agriculture that good and wholesome home-made butter cannot be readily obtained. Even those who are willing to pay the highest price are unable to obtain a supply of this requisite of the breakfast table, especially in the winter months.

Supplies of prime quality both in winter and summer are often sent from the home farm to the family whilst away from the mansion or country residence. This circumstance, however, is quite an exception, and does not induce the home farmer to consider butter-making as a commercial transaction and worth his while to supply butter to the trade in the provincial towns and country districts, it being considered more profitable and not requiring such nicety of management to sell the dairy produce as milk, or otherwise fatten calves for veal. It is, indeed, a singular state of things when the consumer himself at each visit to his grocer finds that he is almost obliged to confine his purchase to articles not of first-rate quality made on the continent. We feel sure that we are echoing the feeling of consumers in asserting that it almost yearly becomes a more difficult matter to

obtain fairly good home-made butter, unless we make it ourselves, under the most favourable circumstances; and as we had butter made upon our farm for nearly forty years, we can say from experience that the causes are numerous which must be combined to make first-class butter. For a full and detailed statement of this matter we must refer our readers to our article upon the management of a butter-making dairy given in this Journal, April 11th, 1878. Still, as many of our readers may not be able to refer so far back, we will give in a concise form a few observations including the most important points to be adopted.

First of all we would select one-half shorthorn cows and the other Jerseys, especially for summer butter. The pastures, however, need not be of the richest quality like the best which will fatten a bullock without any assistance from cake-feeding, but those containing a good mixture of herbs and "Sweet Vernal Grass," which gives the butter the best flavour, are to be preferred. In winter the mode of feeding is still more important and complicated, and should consist of sweet pasture hay, whole Wheat meal or bran, the large red Cattle Potatoes, or Savoy Cabbages. The next point to be considered is the cowsheds, stalls, or boxes, the latter being best because the air will be quite pure if properly managed with an earth floor. Again, it is not only necessary as regards the milking of the cows that the milker's hands should be perfectly clean, but that the cow's udders should be clean also; that the time in milking should not be too long, but that the last drop of milk should be carefully stripped, as the largest portion of cream leaves the udder last. The milk when obtained must be cooled by a refrigerator or cooler, Lawrence's being considered the best, for if properly managed it will immediately bring down the temperature from 90° as it leaves the cow to 50° or 60° according to the state of the weather; indeed in very hot weather ice is frequently used to keep the water at the desired temperature.

We have now, after having stated the points which have in the best-managed butter dairies been acted upon for many years, to state some of the great improvements which have taken place, especially on the continent, in making butter. The implements and processes which are of comparatively recent adoption we shall notice in connection with those shown by Mr. G. M. Allender, and used at the time of his butter-making exhibition at Derby. These, however, vary in name and capabilities in certain countries abroad, which characterise and give them separate names by which the processes are known. Take first, for instance, the cream-separating machinery, the best of which are reduced to three in number, although there were shown as butter-making and working machines for the entire process eight in number altogether. Taking the three cream-separators first, which were used in one section; they were called the Laval (Swedish), the Lefeldt (German), and the Neilson Petersen (Danish). The Laval separator is pretty well known since its exhibition at the Kilburn meeting of the Royal Society, and is described as follows—"Separation in all cases is the result of gravitation. The cream-globules, being of less density than the watery parts, rise to the surface. The action of the machine is to expedite the process by submitting the milk to rapid centrifugal motion, which causes the heavier ingredients to be thrown to the outside of the circle, whilst the cream occupies a more central position close round the axis of rotation. In actual work the milk as it comes from the cow is placed in a milk can, and delivered by means of an ordinary tap into the top of a hollow tube which terminates near the bottom of a spherical vessel of about 10 inches in diameter, which, encased in a cast-iron casing, rotates at a very high velocity—viz., six or seven thousand revolutions per minute. An instantaneous separation takes place. The heavier portion, which represents what we call skim milk, is thrown to the outside of the vessel, and forced up a bent perforated pipe which communicates with an open space, whence the milk is delivered into the middle of two block-tin trays or covers which are provided with an outlet pipe. The rapidity with which the milk enters the centrifuge must be regulated according to the velocity with which it is driven. The cream remains near the centre, rises round the outside of the inlet pipe, and delivers itself into the upper tin tray, where it is discharged through an outlet pipe. The rotating vessel and shaft are of forged steel in one piece, tested by a pressure of 250 atmospheres." It is generally thought that as far as separation goes this Laval machine, described as above, is nearly perfect. In a recent experiment the skim milk from this machine was tested without a trace of butter being obtained, and several experiments serve to show that Laval's process will give a superior result to the celebrated "ice method." We cannot further enlarge upon this machine, as we have others to describe and compare.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Ploughing for the winter fallows is still being continued, but the sooner it is everywhere completed the better. We noticed to-day three horses and a driver ploughing upon a Wheat stubble, the soil being a dry loam on gravel. We name this because the home farmer must expect to obtain a profitable result of his horse labour, to receive any advantage in farming, and under ordinary circumstances the land ought to be ploughed a fair depth, say 8 inches, with two horses in the winter months. Later in the season when dry, such land may be ploughed with the double-furrowed implement with two horses attached, if the horses are strong and active and well fed; but they should not be under 16½ or 17 hands high, and then they will do the work with ease to themselves, and, with only one man to manage them, with profit to their employer. We notice in many cases that the teams are employed in carting manure from the stables and street sweepings from the towns, and we fail to see how this can be profitable. Under our plan of manuring we always used artificial manures in preference to town manure, requiring as it does such heavy carriage from some miles distance, and in consequence for twenty years our waggons returned from the towns without loading with stable or other bulky manures. The last lot which fairly represented the article we had analysed by Dr. Voelcker, and quite satisfied us that manure possessing so little of the essentials would never pay for the carriage. In consequence we have preferred to load back with artificial manures or feeding materials, such as linseed oil cake or cotton cake. We notice that some farmers are carting out long fresh manure from the cattle pens, stables, or pig pens, and ploughing it under directly. This is a good plan, very economical when the ground is clean; for whether the next crop is intended to be Mangolds or planted with Potatoes, it not only keeps the horse labour in a forward state, but the full value of the manure is obtained upon all dry loamy soils.

Hand Labour.—Even on wet days work should be always found for the men, and women too, under cover, such as breaking and bagging guano, screening chalk, ashes, &c., in the manure house or barn mows, or wherever it may be deposited ready for use in the spring. When the weather is fine the men are employed in cleaning out the ditches and clearing away any deposits likely to choke the emptying tiles of the draining work. The women are forking out the lumps of couch in the Swedish Turnip fields, as the leaves have now fallen sufficiently for the bunches of grass and other root weeds to be seen. The cutting of underwood is still going on, but we have directed the agent to mark with red paint all the heirs which are to be saved, whether of Oak, Ash, or Elm; to prevent the woodcutters, however, from destroying the timber heirs, we have it done in advance of them. The water meadows now require constant attention, so that the water during heavy rains should not be allowed to be flooding any portion beyond the usual time. We have some handsome and well-grown quick hedges which in time become rather overgrown; these are now being cut back to the required dimensions as to height and width. But where possible we remove these fences, drain the dykes, and then form the fields into such sizes as are convenient and desirable in the case of steam cultivating. This, however, applies only to arable land, for we never allow our sheep to lie under hedges for shelter on arable land in summer or winter, because where they retire for shelter there they drop their manure.

Live Stock.—The lambing folds should have been prepared for the past fortnight, for Hampshire down ewes are now beginning to drop their lambs, and at this busy time for the shepherd assistance should be generously afforded him. If the lambing fold is not near his cottage one of the houses on wheels properly furnished should be allowed him, as by this plan when the ewes are lambing at night in cold frosty weather many weakly lambs will be lost unless they can be placed near a warm stove, with which travelling or moveable houses should be furnished. Medicine or other articles will also be required more or less at the lambing fold, even when the stock is ever so healthy. Drumhead Savoy Cabbages are the healthiest green food which can be given to ewes just before and after lambing; but under any circumstances cut Swedes in troughs should be avoided, for we have known serious losses occur to ewes which have eaten largely of them at such a time. Sweet hay is good for the ewes whilst feeding on Cabbages after lambing, but not before. We know some very thoughtful farmers who, instead of feeding ewes in lamb with hay, prefer to lay up some healthy down or dry parkland after July, so that the autumn growth of grass may be available for the in-lamb ewes.

The wether sheep or tegs have not improved very fast lately, the weather having been wet, but yet where the sheep receive all food in troughs they can eat their food with cleanliness and little trouble. When the roots are cut and placed in troughs with cake or meal strewn over them the sheep are sure to do well, especially if they get the hay cut into chaff and given in troughs also. We object, however, to the cake or cracked beans or peas being mixed with chaff, for the animals are sure to search for the best food and rout the chaff out of the troughs. Our young cattle are now doing well in the boxes, where they receive about 50 lbs. of cut Carrots or Swedes daily, with 4 lbs. of cake meal strewn over them in the feeding manger or boxes. All the animals now about two years old which have been fattening from the time they were calves should now be pushed forward, so that they may come ready for the butcher in June.

and July, just before the cattle grazed on the pastures come into the market, for they always realise a better price about that time, particularly if they are not too heavy, as light weights always sell best in summer time.

POULTRY AND PIGEONS

DORKINGS IN THE PAST YEAR.

CONTROVERSIES among fanciers from time to time arise over their favourite breeds of poultry. It is natural that such should be the case. How far in estimating the merits of a bird size should count against marking, and what points are so essentially characteristic that they must be considered *sine quâ non*, are questions not likely to be answered alike by all. There have been such controversies about Brahmas, Cochins, and other breeds, but none of them has been waged with so much animation as the Dorking controversy. For the most part their subject has been marking, and the doubt has generally been settled by one or two eminent judges throwing their weighty favour into the one scale or the other. The Dorking controversy has been by no means so superficial a topic, the mooted point at the bottom of it being whether the useful English table fowl *par excellence* has of late years deteriorated in useful qualities or been improved. Our views on the subject have more than once been stated to the best of our ability, and we are not now going to reiterate them. The great interest, however, that has seemed to be attached to the question is our apology for once more returning to it, just so far as to take a rough survey of the characteristics of the Dorkings shown during the past year.

The first thing that must strike any casual glancer at the classes in any of the large shows is, that the long legs so often seen some three or four years ago are gone, we hope never to be seen again. This, doubtless, is owing partly to the persistence of some old and true fanciers in constantly condemning them, and partly to the fact that Dorkings are now constantly judged by Dorking breeders, and not by those who simply know them from poultry books. The other chief point of interest is whiteness of foot. Here we do not pretend to see an improvement all round as in the case of legs, but we certainly see an improvement in the prize pen—a proof that attention is given to it; and we hear, too, when standing by a Dorking class many a critic's remark thereon—another proof of the same fact, for a few years ago the point was little thought of and seldom spoken of.

We will first speak of the Dark breed. When an outcry was justly raised against sooty feet some said, "Let us have lighter-coloured birds, it is impossible to have white feet with dark-brown plumage; sooty feet came in with this plumage." There seems reason enough in this belief, but we never held it ourselves for several reasons, and we fancy that we have this season seen fresh confirmation of our opinion. Certainly from the best yards many birds have been shown with white feet, and they for the most part have been of the rich brown colour. We have seen, too, much to strengthen our belief, often stated, that there is some real connection between white feet and the true Dorking shape. Careful breeders need to persevere in excluding dark-footed Dorkings, and in a few years they will, we hope, be as rare as are "leggy" birds now. To turn to the Silver Greys. We regret to see very dark feet often tolerated in pullets. They generally go with very pale breasts—another argument against their following dark plumage.

A change has come over this breed. We remember when it was extremely difficult to breed pullets without red in the wing. This blemish is now almost unknown, but brown is constantly found on the cocks' wings—a great drawback to the sharply contrasted black and white, to our fancy one of the chief beauties of the race. These minutiae of marking are very hereditary, which should not be forgotten.

Cuckoo Dorkings deserve more attention than they seem to get. We have never been advocates of hypercriticism on points of mere ornament, but surely breeders should be able to produce Cuckoos with better combs than most of those exhibited at the Crystal Palace had. Many of them were simply masses of flesh, so overgrown as to be uncomfortable to the birds. Crosses have, we know, been the bane of this as of other Cuckoo breeds. At first increased size is very apparent, while a large majority of the produce are still Cuckoo. In two or three generations no more, perhaps fewer, are found correctly marked; black or mixed produce are always appearing and disgust the breeder. Hence probably the few exhibitors of the breed and the mediocrity of their exhibits.

White Dorkings have been stationary. A few old breeders ever stick to their fancy and are ever loud in its praise, but we see no general advance in the breed or dispersion of it. In a few cases we have regretted to see a tendency to misplaced spurs in Whites—a fault at once to be stamped out. It has become common in the coloured varieties solely because its importance was not at first recognised. A bird with a misplaced spur cannot have a strong leg or stand properly. Yellow plumage is fortunately rarer than it was; we have always traced it, when found to any extent, to crosses with other breeds, White Cochins or Dark Dorkings. Fanciers are only by degrees learning the true value of pure long-established race, and make too many experiments by far in such crosses. When fresh blood is absolutely necessary pure old families must be sought; a cross with such, even though they may fail in size, is far more desirable than one with a different breed, even though the results of the latter may at first appear satisfactory. Such are briefly the general points in the Dorkings of the year which have struck us, and the conclusions we draw from them.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the New Corn Exchange, Cambridge, on Thursday, 5th inst., at 10 A.M. There were present the Hon. and Rev. F. G. Dutton (in the chair), Messrs. T. C. Burnell, A. Comyns, R. H. Dugmore, S. Lucas, L. Norris, and G. Vigers.

ELECTION OF MEMBERS.—The following new member was elected—H. H. Young, Stapleton, Dorking. The following new Associates were elected—W. R. Firman, Belchamp Walter, Sudbury; W. Weston, 31, Mount Street, Aylesbury; W. A. Blakston, Douro Terrace, Sunderland.

TRIMMED GAME COCK AT THE CRYSTAL PALACE SHOW.—A case which had been several times under the consideration of the Committee was again brought forward. It was alleged that the Rev. R. F. Maynard had exhibited at the Crystal Palace Show a Game cock whose hackles had been cut. The Committee having satisfied themselves that the facts were as stated, the following resolution was passed—

"That the Rev. R. F. Maynard be disqualified for one year, from January 1st, 1882, from exhibiting at shows held under Poultry Club Rules."

ATTEMPT TO BRIBE THE CLUB SECRETARY.—The Hon. Secretary read a correspondence which had taken place between Mr. John Burn of Hodbarrow, Millom, Cumberland, and himself, from which it appeared that Mr. Burn had offered the Secretary a considerable percentage on any prize money won by Mr. J. Burn at the Club Show held at Cambridge on January 4th and 5th. The following resolution was passed—

"That Mr. John Burn be absolutely disqualified from exhibiting at shows held under Poultry Club Rules."

ELECTION OF OFFICERS.—The Secretary was directed to issue voting papers for the annual election of officers and committeemen.

NEXT MEETING.—The next meeting of the Committee was fixed for Monday, February 6th, at the Charing Cross Hotel, at 2 P.M.

NOTES ON THE POULTRY CLUB SHOW.

THE Poultry Club held its first Show of poultry at the New Corn Exchange, Cambridge, on Wednesday and Thursday in last week, in conjunction with the Show of Pigeons, Cage Birds, and Rabbits of the Cambs Ornithological Society. The hall is in every respect admirably suited for such an Exhibition, being large, lofty, and well lighted. There were in all 2284 exhibits, and the capacities of the building were by no means taxed to the utmost. All the open classes of poultry and Pigeons and all the cage birds were staged in the main building. The large breeds stood for all practical purposes in a single tier in four double rows down the centre of the hall. We say for all practical purposes, because, though the Bantams, Pigeons, and cage birds were staged over them, the pens of the smaller breeds were set back some 9 inches from the fronts of the larger pens, and thus a full view of these was obtainable without difficulty. The Game and Hamburgs occupied the upper tier round the outer walls, while the Langshans and other open classes of poultry, including live table poultry, occupied the tier immediately under the Game. Every bird in each class was upon a perfect equality as to light, position, &c., and this must have greatly facilitated the task of judging. The Geese and Turkeys occupied the foot of the room, and owing, we believe, to the Honorary Secretary of the Club having somewhat late in the day to find 300 or 400 feet of staging for cage birds, which had been originally intended to be shown in another room, the Ducks were obliged to be relegated to the ground at one side of the building, where, however, there was a good light. The Rabbits and all the local and selling classes occupied the side building.

The special railway arrangements made for the Show are worthy of notice. Through the exertions of Mr. Comyns, no less than twenty through vans from various parts of the kingdom ran direct to Cambridge, and each exhibitor was furnished with a list of these, containing a time table of their respective departures.

The Show closed at 9.30 on Thursday night, and by 5 A.M. on Friday every exhibit which had to go by railway, except, perhaps, one or two detained for special causes, had been delivered to the railway companies. We may mention that the London and North-Western railway despatched a special train of nine vans from Cambridge to Bletchley at 7.40 on Friday morning, thus ensuring an early distribution to all parts of their line. The other companies sent off their consignments by the first trains on the Friday morning.

The Cambridge catalogue contained a feature to which we may, perhaps, refer at more length later—namely, each breed was shortly described in popular terms in the catalogue. This thus became of special value to the general visitors to the Show, whose ignorance upon poultry matters it could not fail to enlighten. While upon the subject of the catalogue, we may say that the last of the awards were handed in, we believe, after 4 P.M. on Wednesday, and the catalogue with the awards in the margin was in the hands of the public at a quarter before 6 P.M. For so large a Show this was quick work, and reflected great credit on Messrs. Fabb & Tyler, the printers.

Brahmas were large classes. The competition for the cup lay finally between Mr. Holland's Dark pullet, which Mr. Fryer Bennett selected as the best bird in his classes, and Mr. Wood's Light Brahma pullet, which Mr. R. E. Horsfall similarly selected. These two gentlemen were, we believe, unable to arrive at a decision as to which of the birds should be placed first, and the Stewards ultimately called in Mr. Leno to arbitrate between them. He gave his opinion in favour of the Dark pullet, which thus secured the honour. She is beautifully pencilled, and of good size and feather, though, perhaps, a trifle wanting in width, in which latter point Mr. Wood's Light has the advantage of her. We seemed to remember this latter as having been a winner at the Palace.

The Cochon cup was awarded to Mr. Sothorn with a very fine pen of Partridge. Here again we may mention that the services of Mr. Leno were called in, as Capt. Heaton thought he recognised some of the birds which he had selected to choose from for the cup-winners, and feared that his opinion might be biased by his knowledge of their ownership. We may say, however, that though Mr. Leno made the award, it was precisely the award which Captain Heaton would himself have made but for the circumstances above mentioned.

The competition was very keen in Dorkings, and the cup went to Mr. L. Pilkington with a very massive pair of old birds. Messrs. Cranston, Butler Smith, J. A. & M. F. Smyth, and J. E. Pilgrim were other principal winners.

French were large classes, especially Houdans, which numbered twenty-five. Here in common with the other classes where the numbers reached twenty-five, extra pens were provided at the end of the class, and the prizewinners placed there for the purpose of enabling them to be readily compared. The plan seemed to work well and to give satisfaction. The cup for French breeds went to Mr. T. Fullarton with a fine Crève-Cœur cock.

Game were numerous represented, and most of the best birds of the season were present. Mr. J. Mercer gained the coveted cup with a Brown Red cockerel. The Hon. and Rev. F. G. Dutton, Messrs. Staveley, S. Matthews, and T. P. Lyon, were other winners of first prizes.

The Hamburg classes, with the exception of the Blacks, were not very numerous. The cup for Hamburgs and Polish went to Mr. James Long's pair of Blacks, which were well worthy of their position.

Scotch Greys came to the front in the class for Plymouth Rocks, Scotch Greys, or Dominiques; and to Mrs. Muir was deservedly awarded the cup for the above-mentioned breeds, Andalusians, and Leghorns. Mr. Beldon's well-known pen of Sultans as usual headed the list; they also gained the cup for Sultans and Silkies.

The Spanish were the best we have seen this season, the cup for several breeds going here to Messrs. Wingfield & Davies with a grand pair of birds, whilst the pullet in the second-prize pen (Mr. W. R. Bull) was also of uncommon merit.

Bantams were numerous and good. Mr. T. P. Lyon took the cup for Game with a smart Black Red, while Mr. U. Spury took that for the other variety Bantams with very neat Sebrights. The Countess of Dartmouth was first in the Japanese class with her Frizzled Japanese, which thus established their disputed claim to be ranked among Japanese Bantams.

The Duck cup went to Messrs. Fowler with a fine pen of Rouens. The same gentlemen were successful in Geese, and Mr. Walton headed the list in what the Judge described as a most excellent class of Turkeys.

The live table poultry class numbered twenty-one entries, but Mr. Tegetmeier declared himself disappointed with the average quality of the birds. The first prizewinners were bred from Dorking cock and Game hen, which cross is said to be much superior to that between Game cock and Dorking hen. Birds of this latter cross stood second.

We may, we think, fairly congratulate the Poultry Club and its Secretary upon the success of the first Show. We hope the event may become an annual one. The prizes will, we are informed, be paid this week.

THE PHILOPERISTERONIC SOCIETY.

WE cannot congratulate this Society as we have had the pleasure of so doing hitherto, on their comfortable quarters for their grand

show at the Crystal Palace. It seemed to us "Anywhere, anywhere, out of the world." Held as it has hitherto been in the tropical department, interspersed with foliage, we could conceive no prettier sight; but, well, we will say no more, if the Society be satisfied; but it strikes us as another example of the present management making the least instead of the most of a good thing.

In Dragoons Mr. C. Howard had some very fine examples; one pen of his truly beautiful Blues were all winners, and were admired by both the old and the modern fanciers. Dr. Dwelly's birds were good, though of entirely a different vein of the bird. Mr. Whitehead's Yellows were highly commendable. That fine old genial fancier, Mr. Esquilant, showed his true knowledge of the bird in his pen of excellent Silver-powdered Owls, good in head and of the true Owl cast, being rid of the Turbit gullet; of late we have seldom seen such good birds, but from so good a judge we could expect no less. Mr. Parkins Jones showed some good birds, though to our eye a little coarse. From Mr. Thirkell came fanciers' birds shown in true fancier's condition. Mr. Stevenson's Yellow Turbits were too loose in feather, and though good in colour were still wanting in quality. Two excellent Trumpeters were exhibited by Mr. Waterhouse. There was nothing particularly noticeable in the Jacobins. Antwerps were of the usual type. Mr. Dupre's Almonds lacked brilliancy of colour, though there was other points of excellence. The Pouters of Mr. Volckman attracted much attention, and that most deservedly; graceful in form, good in colour and marking in splendid condition, they merited the praise unreservedly given. Capt. Hill's birds were of that fine quality that has made his loft famous. Mr. Comb and Mr. Gill also sent good specimens, especially Yellows. Mr. Matthew Hedley's Carriers were excellent in quality, as were his Barbs, both Black and Dun; Mr. Squeer pressing in close with Carriers, and not far off Mr. Stevens. Mr. P. Jones's pair of Blue Fantails were a credit to him. There were also many others, which we are unfortunately unable to notice as time is against us.

OUR LETTER BOX.

Fowls Dying (C. Edwards).—We fail to perceive any evidence of poisoning, as there is no inflammation; this, however, is not conclusive proof of the absence of poison. The fowl sent had fed on maize and wheat to repletion, and was, in fact, quite crop-bound. This not infrequently causes death. Or death may have resulted from apoplexy, which also may arise from overfeeding with maize. When fowls are crop-bound warm water should be poured down their throats, and by careful and continuous rubbing with the hand the obstruction will gradually yield to the treatment. Then give each bird a dessert spoonful of castor oil. Give soft food sparingly at first, and hard food cautiously. Whatever may have been the cause of death, we are decidedly of opinion that your birds have been permitted to eat maize too freely.

Sowing Field Cabbages and Turnips (H. W.).—Cabbage seed should be sown about the middle of February on a warm border, or sheltered headland if in the field near where the plants will be required for use. The best sorts are Robinson's Champion Drumhead and the large Drumhead Savoy. When the Champions attain their full size they are apt to split and show decayed leaves, after which the Savoy comes in for use and maintain their feeding value until the spring. The best distance to drill Swedes or Turnips is 2 feet apart between the lines, so that the intercultural may be effectually carried out, the distance in the lines between the plants being guided by the condition of the land. The same plan applies to Mangolds, except that they must be left wider apart in the lines. There was nothing enclosed in your letter. Your name was received much too late for insertion in the list. There is no charge.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Baromet- ter at 29" and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
January.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			Inches.	deg.			deg.	deg.	deg.	deg.	deg.	
Sun.	1	29.819	44.0	42.9	S.	40.6	43.5	40.3	56.2	34.1	0.218	
Mon.	2	29.777	45.4	43.1	W.	40.8	50.8	36.2	50.2	31.3	0.215	
Tues.	3	29.240	46.4	45.0	S.W.	42.3	51.0	44.7	63.2	42.4	—	
Wed.	4	29.888	35.6	34.6	N.W.	41.6	43.1	32.3	63.9	26.9	0.182	
Thurs.	5	29.688	48.8	47.8	W.S.W.	40.3	52.7	34.9	54.7	28.9	—	
Friday	6	29.676	51.6	50.0	S.W.	41.7	53.4	43.6	55.3	36.4	0.024	
Satur.	7	29.866	39.5	37.9	W.	41.9	47.4	37.7	74.4	29.7	—	
		29.708	44.5	43.0		41.3	49.6	38.5	59.7	32.8	0.589	

REMARKS.

- 1st.—Fine morning; heavy showers at 3.45 P.M.; moonlight evening. Lunar halo.
- 2nd.—Generally fair; wind high with rain in evening.
- 3rd.—Fine and bright.
- 4th.—Fine and bright.
- 5th.—Rough with rain in morning; fine afternoon; moonlight night; mild throughout.
- 6th.—Squally morning; strong gust of wind with sharp shower at 1.30 P.M.; mild.
- 7th.—Very fine, bright sunshine; cooler air.

Although there has been frost on the grass on several mornings, the temperature has kept much above the average.—G. J. SYMONS.



19th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
20th	F	
21st	S	
22nd	SUN	3RD SUNDAY AFTER EPIPHANY.
23rd	M	
24th	TU	
25th	W	Society of Arts at 8 P.M.

ECONOMY OF TIME AND MATERIAL IN GARDENS.

GARDENERS have much to exercise their minds on if they would make sure of success, and work to perform for which they receive little credit, as the nature of much garden work is not seen. Indeed the great difference between successful men and those who are not is that the former have a keener appreciation than the latter of the necessity for the hidden, yet none the less important, operations. To the eye of one not in the secret double-dug ground involves no more time or labour than land plainly dug, and pointing over soil to the depth of 6 inches costs as much as that trenched 3 feet deep! Pruning and nailing wall trees is work that is seen and appreciated by those little skilled in gardening; but, what is even more necessary on many soils, the operation of root-lifting and root-pruning, although costing much more in time and labour, and contributing even more to successful results, is unseen and too often unthought of. He who kills no caterpillars and molests no red spiders may have more leisure for hoeing and raking than he who with much labour produces better Gooseberries and Grapes by keeping such pests down. He who prunes only in winter may have less fruit, and what he has may be inferior to that produced by the laborious and intelligent man who pinches and thins carefully in summer time, but he will have more time. He who allows thrips, scale, and mealy bug to work havoc among his house plants may have less assistance and yet be less hard-worked than he who fights a successful battle against them; but we doubt if what is saved in labour will balance what is spent on new plants; and even though it did, the results are never equal. Gardeners have need to study economy, but so have the owners of gardens, and the above we submit to their attention. The following we submit to gardeners, more especially those who are just entering on a gardener's career.

The exercise of economy is a virtue when there is plenty, and a necessity when there is not. Like knowledge it is a power, and like money it represents wealth. "A penny saved is a penny gained." Wanting economy we fail to realise to the full our resources, and when straitened we may altogether fail. It has been said that "Time is money," and certainly the proper economy of time may to some extent take its place. The commercial, but more especially the agricultural depression, has made money scarce among the possessors of gardens and the employers of gardeners, and the result is that the labour bills have in many places been reduced, even when not enough was before afforded, so making the necessity greater

for gardeners exercising a more stringent economy of time and material.

Those who value time will take care to have a place for everything and everything in its place. Those workmen who ignore this golden rule often lose much time looking for tools which have been mislaid. In gardening much time is wasted by work being done in unsuitable weather. Not long since we visited a fine establishment on a drizzly day, and found the men busy hoeing up weeds on gravel walks. Such work we need scarcely say was labour thrown away, for the small weeds would not be harmed in the least. A week after we found the men trying hard to cut short grass on the terraces when it was as dry as a hot sun and a dry wind could make it. On a damp day the work would have been done much better, easier, and quicker. In both cases time was thrown away just by doing both things at the wrong time. Hoeing in wet weather is nearly useless; then is the time to mow grass when scythes are used. Cutting grass in dry weather costs more labour than when it is wet; wet grass is easily cut; but when the sun shines and dry winds blow, then is the time to use the hoe economically. We doubt if the hoeing of ground or gravel in wet localities or seasons when the surface of the ground is never thoroughly dry, is an economical way of keeping down weeds. We know two gardens which are very near together, and are almost counterparts of each other. Much more assistance is given in one than the other, and there much more labour is spent in eradicating the weeds, yet fewer weeds are found where the lesser labour is bestowed. There the gravel is remarkably free from weeds, but by no means so in the other. In one the gravel is carefully hand-weeded every time the grass edges are cut; no weed ever seeds, so the hand-weeding is a light task. In the other case much labour is spent with hoe and rake, but owing to the dripping climate numbers perfect their seeds, which in their turn cause great labour. Circumstances alter cases, and what may be an economical method in one instance may be quite the opposite under different circumstances.

Speaking of the eradication of weeds brings to mind two bad cases with which we had to deal not long ago. At the back of the house here there is a broad path never exposed to the sun, and which is very damp—so much so that it had become almost completely covered with Spleenworts. Hosing, and turning and renewal of gravel had been tried in vain. The first time the family was away we mixed paraffin oil and water at the rate of 1 of oil to 40 of water, and distributed this uniformly over the surface. In a short time the gravel was bright and clean, and this repeated yearly has kept it so at small expense and with little labour. In the other case we had taken in a piece of ground completely overrun with Twitch Grass and Coltsfoot. The turf was turned to the bottom of a very shallow trench, for the soil is very thin, and a good layer of manure placed near the surface. No time was available to fork out any of the weeds, but in spring we planted *Magnum Bonum* Potatoes, 3 feet between the rows and 15 inches between the plants in the row, and these, besides furnishing us with a large crop of Potatoes, completely destroyed the weeds. Few things will eradicate weeds so well as luxuriant crops.

It should always be borne in mind that the task of preventing weeds growing is a small one compared with destroying them when grown. Wherever the climate will admit of it, every inch of garden ground should be thoroughly hoed once

every three weeks at least, and in well-kept ornamental ground once a fortnight. It is a mistake to postpone garden work. A piece of ground may be easily cleared this week in an hour, which may cost two or three if the work is postponed. "Time and tide wait for no man," and as little will garden work. We have one lawn here which if cut once every week takes just two hours and forty minutes; but when a week is missed, and sometimes we must do it, the scythe has to be used before the machine can be passed over it. Three hours are saved (!) at the expense of fifteen! This is only one illustration, for many other garden operations if delayed become almost useless. For instance, if Grapes are not thinned when they ought to be, what is the result? Ruin of the crop is far too often only overcome by the unfortunate who is responsible, sitting up late and rising early when others are resting.

We imagine we save time in winter for summer use by supplying most of our liquid manure then. There is a too common idea abroad that the application of liquid manure can only properly be done when the crops are growing. Now, to apply liquid manure to growing crops in summer effectually it is necessary that much water be used, and when this is supplied with carts and cans much labour is spent on carrying water rather than manure. On the other hand, when applied to land in winter the strongest liquid drained from stables or cowhouses may be applied without any dilution. There is an idea that the manurial elements must be washed away and lost when it is thus applied in winter. This is by no means so. Spread thinly in frosty weather (and it is then most economically applied, for most outdoor work is then suspended) it is washed into and uniformly diffused through the upper layers, when it is taken up by the soil and kept there till plant roots can utilise it. It is only when the soil is very sandy indeed that manure thus applied is to any extent lost. Ordinary loamy soils will retain it all.

Not only is the application of farmyard water in winter an economical method of applying it as regards time, but much more so as regards the crop. The moment crops root into soil so manured they derive the benefit at once; while when it is applied in summer only, many applications have to be given, and time is to the crop partly lost before the plants derive much benefit. For our part it is a question, not of whether we shall apply it in summer or winter, but whether we shall apply it winter or not at all, and we doubt not many more are in the same position. If this should be read by any who may doubt whether the application of stable water be of service to crops when applied in winter, we would say, Doubt no longer. For want of time—indeed, partly for want of material—we cannot to any extent use it in summer (and it is everywhere more abundant in winter than in summer). So whether a given quantity applied in winter or in summer will produce the greater effect we will not say; but we do say, having proved it, that applied in winter it is of great service to the crops which follow. Among others bush fruits are benefited greatly, especially if the soil be poor or the plants old, and more particularly if ordinary manure has been used only. Of course where there is a proper system of storage tanks and pipes and a supply of water it may be economically applied at any time, and when applied in dry weather on hot soils plentifully its summer application will undoubtedly be more marked. But all have not pipes and hose, and it is worth while considering whether it is more economical to apply a given quantity of manurial salts as found in urine diluted in one ton of water, as when pure in winter, or in five or six, as is necessary when used in summer.

A careful division of labour is a very economical arrangement. When a journeyman it was part of our experience to have to dig for weeks, and to prune and nail for a similar time. Digging, of course, must be done while the ground is suitable; pruning and even nailing may be done at any time. That is true, but it is not that arrangement of time to which we refer. How often, when nailing in the leaden grey of a December morning, have we wished for an hour or two's exhilarating work at the spade! And when we were really suffering from pent-up energy, what a thrifty two-hours digging we would have given! We have often in early summer stiffened our joints and cramped our fingers from six in the morning till six at night thinning and weeding growing crops—alike in

the cool morning and under the noonday sun. Next day, very probably, there was a ten-hours spell at digging. All this is the opposite of economical, yet it is very common. From six till nine, while still cool, at the digging, and when the sun was high at the weeding and thinning, would have been far better for our physical well-being, and the work would undoubtedly have been sooner finished.

There is another point to which we would refer, and we would especially call the attention of young men to this. Light work should always be done as rapidly as possible. The young man who employs his fingers as busily as he can at such work—as, for instance, pruning Gooseberries, or nailing wall trees, or tying Peach trees, or sponging plants—will not be more exhausted at night than will be the young man who takes things leisurely; but by such economy of time will leave more for himself and others to perform heavy work, which cannot be pushed to the same extent. Such a man is often of extreme value to a hard-trying head gardener, and at the least he will acquire the ability to do things rapidly, which is an acquirement worth the trouble of gaining. By following the opposite course any young man may be sure that much chagrin is in store for him in his future, for he will find that he will often fail at a supreme moment, just when it is necessary that a spurt should be made.

We remember an instance of how great dexterity at light work may be acquired. Some years ago a weaver lad gained admittance as an apprentice to a gardener. On the place there was a vinery, the Vines trained on the long-rod principle. These had been pruned and cleaned, and the lad sent to tie the shoots into their places. The gardener always gave this work to the apprentices, for he meant it to be a lesson to them in the proper distribution of young wood. After listening to an explanatory lecture the lad was left to the freedom of his own will. Half an hour afterwards he appeared wanting another job, announcing the last one finished. No lad had ever done the task before in less than a winter's day, and even at that many ties were often found imperfect—too tight, too loose, or knots that would not hold, were always discovered by the lynx-eyed overseer. First that individual avowed his belief that none were tied; then he thought that the whole would be tied in a bundle; but, finally, went to examine the performance. To his astonishment not only was every tie perfect, but nothing but praise could be found for the admirable way the distribution of the wood was effected. "Let me see you tie some knots," said the wondering gardener. Quick as thought a dozen knots were tied with a rapidity that no untrained eye could follow. "Man, ye 've mista'en yer tred; ye shed gang and serve a 'prenticeship wi' the 'Wizard o' the North,'" exclaimed the delighted "Adam." The lad explained that one of the main things in weaving was the rapid tying of broken threads. Many fail in that because while threads are being tied the loom stands, and seconds lost on each tie come to be hours in a day sometimes. But not only will dexterity acquired one way be of value in similar operations; it is transferable to others. That same lad used to gather small fruits with a rapidity unique. We hope our young readers will fully understand our meaning, for though some are naturally slow and others naturally dexterous, habit in this, like everything else, becomes a second nature.

We had noted a few more thoughts that might be embodied in this paper; but as it is reaching a great length we will add little more. At best we can only illustrate; the art of economising time and material can only be learned laboriously and by degrees, by habitually considering whether we work to the best advantage.—SINGLE-HANDED.

THE JOURNAL'S NEW YEAR'S ADDRESS.—Will you permit me, who possibly differs in one respect from "the chaplain general," "WILTSHIRE RECTOR," to express my admiration of the ideas so beautifully expressed with which he launches the *Journal of Horticulture* on another new year? In gardening as in other pursuits there are many things that make success, almost any one of which at times takes precedence of professional ability. This fact would be a potent reason for the occasional introduction of such addresses and of such practical observations as Mr. Pettigrew's into a gardening journal. If there is any portion of that address to my mind that deserves repetition it is the reference to temperance. A gardener may have

all the virtues and accomplishments that make success certain minus this, and failure, at least of health, sooner or later may be predicted. I defy a young man of even ordinary intelligence, with self-reliance, perseverance, an anxiety to please, and, above all, temperance, to fail in the battle of life. At all events if he does from fortuitous causes beyond his control, his conscience will never upbraid him. I speak from upwards of twenty years' experience of temperance, and from some knowledge of gardening in Ireland, England, and France.—W. J. M., *Clonmel*.

CAMELLIAS LOSING THEIR BUDS.

WE are much annoyed by the buds of our Camellias falling, and, what adds to our chagrin, the plants are in robust health. They are in pots, and the only available structure for them in winter is a small conservatory which opens into the mansion. The door is often left open, and a current of air then rushes in, most inimical to plant life. One other thing we suffer from, and that is, as the place is often used as a lounge, the temperature has to be kept as near 55° Fahr. as possible, rather over than under. Under these conditions our Camellias lose their buds, but they make their growth early. This enables us to place our plants out in summer, and causes the plants to flower early. This year, owing to the extreme mildness of the season, we were enabled to keep them out very late, and have the smallest in a cold pit. Although these small plants were not in such robust health as the others, and had before invariably dropped their buds, this year every one expanded beautifully. Before, we always considered the high temperature was the cause of the mischief, and now we have proved it. Much discussion has occurred from time to time on the subject, but too high temperature is the cause, we are convinced, of plants in vigour and carefully watered losing their buds.

It is not easy to grow many different plants in one structure, and when comfortable temperatures have to be kept, whether injurious to the plants or not, sometimes blame is laid where it is not due. Matters are not much better when we have to make a compromise between suiting Camellias on the one hand and Primulas on the other, or even such temperatures as will preserve without injury valuable Orchids when in bloom. Those who have not different structures thus fail to attain the results of those more happily situated.—A SCOTCHMAN.

SOWING AND PLANTING EARLY CABBAGES.

THE answer given to "INQUIRER" on page 40 induces me to detail my practice in growing early Cabbages. Some sorts, such as Early York, almost invariably run to seed without hearting if sown for autumn planting. I find also that the large-growing kinds, such as Enfield Market, Suttons' Imperial, and others, do not stand a hard winter so well as dwarfed and more compact-growing varieties. I make a first sowing about St. Swithin's day, a second at the beginning of August, and a third, sown thinly, about a fortnight or three weeks later to stand the winter in the seed beds for planting out in the spring. My first batch is always planted after Onions, the ground for which has been well trenched before sowing, so that no digging is required for Cabbages, as they make a sturdier growth in rather firm soil. I merely hoe and rake the surface, and put the plants 15 inches asunder in drills drawn 18 inches apart as soon as the Onion crop is cleared. The advantage of the drills is twofold, as it renders watering easier if dry weather makes it necessary, and one or two hoeings after the plants start to keep weeds in check serve to fill in the drills and steady the plants. The plants from the second sowing are planted out towards the end of September, and similarly treated in every way. I sometimes find that, should the autumn be very warm and conducive to rapid growth, that those first planted show signs of hearting towards the end of November, as was the case in the autumn of 1880. The very hard winter which followed destroyed numbers of the hearts; but in an ordinary winter I have never seen this occur, and I usually cut good hearts early in March. The second sowing succeeds these, and a planting made early in spring from the third sowing carries us on through the summer.

It will at once be seen that, planted as thickly as I advise, no thinning of the plants or Coleworts is required, and on the whole I find this the best system. The Cabbage is everybody's vegetable, and is, perhaps, with the exception of the Potato, the most useful we have, but its chief value is when it comes in for use during March, April, and May, when there is often, especially after a hard winter, such a scarcity of green vegetables.

I venture to send the above notes on a very simple subject, should you think them worthy of insertion in the Journal.—A GARDENER.

[Notes so practical as these are, and on subjects so useful,

always meet with acceptance; and that one of the most skilled and accomplished gardeners in Britain should choose the Cabbage as a theme is somewhat suggestive.—ED.]

CHOICE IRIDS.

CYPELLA.

THOUGH several plants are grown in gardens under this name most have now been referred to other genera, and only one—viz., *C. Herberti*, is retained. Two of the best known that have been removed from *Cypella* are *C. gracilis*, now included among the *Maricas*, and *C. plumbea*, now *Phalocallis plumbea*. Like many Iridaceous genera the plants have received several different names, the number and variety of synonyms in some cases being very confusing. But Irids are not singular in that respect, for in nearly every family of plants it is similar, as botanists have always appeared to display a great partiality for new names, and no



Fig. 9.—*Cypella Herberti*.

doubt the new edition of Steudel's "Nomenclator" will be an alarming example of this.

C. HERBERTI.—This pretty bulbous plant is of easy culture either in pots or the open ground, but it has never been abundantly represented in English gardens, and it is now very rarely seen. When grown in pots a light sandy loam with a little leaf soil and good drainage are requisite to its welfare. In the ground a moderately sheltered position and light soil must be chosen, and if the bulbs are allowed to remain in the ground during winter efficient protection must be afforded. It is better, however, to take them up and plant again in spring. The leaves are tapering, but much broader than most of the Irids previously referred to. The flowers are produced several on a stalk, being yellow varying from a light shade to a deep chrome tint. The sepals are ovate at the tip, somewhat constricted in the middle, and spotted or barred with a darker colour at the base. This plant has been

placed by different authors in four genera—i.e., *Marica*, *Moræa*, *Tigridia*, and that under which it is now mentioned. It was originally imported early in the present century from Buenos Ayres by the Earl of Carnarvon, and it was named by Dr. Lindley in honour of the Rev. G. Herbert. The woodcut (fig. 9, page 47) represents the flowers faithfully.

Phalocallis plumbea, though not one of the most attractive plants, deserves a word of note. It is chiefly remarkable for the very short duration of the flowers, which commence fading a few hours after they expand. The sepals are broad at the apex, of a bluish lead colour, with a blotch of yellow sometimes fading to white at the base. It is a Mexican plant, and can be grown under similar treatment to the preceding.

MARICA.

Several species of *Marica* are really useful and beautiful plants. The flowers are brightly coloured, of good size, very freely produced, and mostly last longer than the majority of their allies. About nine species are known, but not more than three or four are grown in gardens, and even they are far from common. The genus is chiefly confined to tropical America, but some representatives are found in tropical Africa and India. It will be seen from this that a higher temperature is needed for *Maricas* than most other Irids. The cool house or open border is unsuited for them, and the most fitting position is either in an intermediate house or stove. A well-drained moderately rich compost of light turfy loam, a little well-decomposed manure, and a liberal proportion of sand is requisite. When the plants are growing water must be freely supplied, and at the flowering period the soil should never be allowed to become dry, or the production of flowers will be checked. The plants are easily managed with attention to these cultural items, and the three species mentioned below will under such treatment usually bear a large number of their bright flowers in succession. It may be further remarked that *Maricas* differ from their other relatives already described in possessing rhizomes instead of bulbs; they are on this account more easily propagated, as the rhizome can be cut into small portions, inserted in sand in a high bottom heat, when shoots and roots are soon produced, the young plants then being potted and treated similarly to the others.

M. GRACILIS.—An elegant plant, and attractive even when not flowering. The leaves are light green, an inch or more broad, tapering, closely resembling *Iris*es in form, and especially like a miniature *I. germanica*. One peculiarity of the plant is its production of what may be termed runners. Narrow leaf-like prolongations from near the root, 6 inches or more in length, bear at their extremities young plants, which when placed in contact with soil speedily form roots, and the species is thus even more readily propagated than by dividing the rhizomes. When, however, it is not desired to increase the stock these runners are best allowed to remain on the plants, as, if they can be arranged near the margin of a shelf or elevated on another pot, the pendulous plantlets have a graceful and striking appearance. The flowers are of moderate size with white or bluish ovate sepals variously marked at the base, the petals small, strangely curved and spotted with reddish brown.

M. CÆRULEA.—A few words of reference to this species will suffice, as a good woodcut appeared in vol. i., page 143, of this series of the Journal, accompanied by some excellent cultural notes by Mr. James Udall, gardener at Shircliffe Hall, Sheffield, who grows the plant remarkably well. The flowers are large with broad rounded sepals, bright blue and marked at the base with brown and yellow. The petals are curved and prettily veined with deep blue.

M. NORTHIANA.—An attractive form, not so well known as the two preceding, and to some extent intermediate in characters. The flowers are larger than those of *M. gracilis*, but not so large as *M. cærulea*, and they resemble the first-named rather more nearly in colouring. The sepals are ovate in shape, white, the base yellowish and elegantly mottled with deep red. The petals are similarly curved to those on the other species, barred with blue at the apex and veined with red at the base. It can be easily grown under the same treatment as *M. gracilis* and *M. cærulea*.

HERBERTIA.

Six species are now included under this genus, the name of which perpetuates that of the Hon. and Rev. W. Herbert, who studied the Irids, Amaryllids, and allied plants so closely and carefully in the early part of the present century. Two forms—namely, *H. Drummondiana* and *H. cærulea*, are natives of Texas; the remaining four—*H. umbellata*, *H. brasiliensis*, *H. unguiculata*, and *H. pulchella*—are found in South America. It will be unnecessary, however, to describe more than one—viz., the last, *H. pul-*

chella, as most of the others are either not in cultivation or very scarce. This, though a native of a warm climate, is found to succeed well in a cool house or frame where frost can be excluded, and a little heat afforded in very damp weather. It is best grown in pots well drained, a compost of peat, a little turfy loam and sand, being adapted for it, supplying water carefully. In habit it is slender and graceful, with narrow leaves and pretty flowers produced singly on a scape 8 or 9 inches high. The sepals are about half an inch broad, 3 or 4 inches long, curving downwards, deep blue with a light streak extending down the centre. The woodcut (fig. 10, page 51), shows these characters very well. It may be observed that the figures of some varieties of *H. pulchella* given in the "Botanical Magazine" some years ago by the gentleman whose name the genus bears, differ considerably from that represented here, the sepals being shorter, broader, and duller in colour.—L. C.

APPLES AND PEARS.

I SUSPECT that there are more persons who will agree with "E. L. O." than "WILTSHIRE RECTOR" is aware of, and that there are many who have the vulgar taste to appreciate the Seckle Pear. At least, I must own I am one of those who do not think it a sweet vulgar, or a vulgar sweet Pear, fit only for a huckster's shop, though I have no doubt that it would command a ready sale when found there. I can only say, as far as my experience of it is concerned, that though *Beurré Hardy* may under favourable conditions be both a handsome and a good-flavoured Pear, that I had much rather have the Seckle (small and insignificant though it may be in the eyes of "WILTSHIRE RECTOR"), as compared with the other. I can very well remember, I shall not say exactly how many years ago, my first eating some Seckles grown in my father's garden in Notts, on espalier trees obtained from the late Mr. Rivers of Sawbridge-worth—rather more, I should say, than forty years ago. It may have been a schoolboy's fancy at the time, perhaps I had a sweet tooth, but I can very well remember saying that it was one of the best Pears out of some seventy varieties which we were then growing, and that my father, who was very interested in the cultivation of Pears, quite came to the same conclusion. I certainly have not altered my opinion yet. I much prefer it still to *Beurré Hardy*, and it is certainly a much surer bearer and hardier even than that variety, at least with me. Although I have the latter both on walls and espaliers as well as bush fruit, I find it a most uncertain bearer, and if the autumns should be cold and wet, only inferior in point of flavour. However, there is an old saying in an old play, "Comparisons are odorous, and "WILTSHIRE RECTOR" must pardon my standing up for an old favourite, especially as I find it is much valued in our house by the rising generation, more so, I think, than any other Pear.

I am also inclined to think that he is wrong to try and limit the varieties of Apples and Pears grown. No doubt Cox's Orange Pippin is a better Apple than the old Golden Pippin, but there are some years when the latter succeeds when the other does not bear, and *vice versa*. So, too, the Irish Peach is a very good Apple and far superior to the Joanneting, but then it is not ready in this climate for at least six weeks after the latter, nor so soon as Early Margaret. Lord Suffield, again, is a larger and finer Apple than our old friend Keswick Codlin, but the tree is not so hardy, and the fruit does not keep so well. When speaking of Pears being too sweet, I have known the same complaint made against Williams' Bon Chrétien, which, in my mind, is a much more highly perfumed Pear than Seckle, and also against Gansel's Bergamot. There is an old proverb, "*Chacun à son goût*," so there are some who even like *Beurré d'Amanlis* and *Beurré Diel*, which when grown on walls make beautiful dishes of fruit to look at, but—and that is a great defect—are not fit for much else. "WILTSHIRE RECTOR" says he only knows of two small Pears worth growing, Winter Nelis and Knight's Monarch. Does he think Zéphirin Grégoire a large Pear, or Comte de Lamy? for both the latter are superior in the north to either of the former, both of which require a south wall or a south-west aspect to bring them to produce them in good condition. Another good Pear in its season is Madame Treyve, but it is rather uncertain. When last writing to the *Journal of Horticulture* about Apples I forgot to mention Alexander and Golden Reinette. The latter is a very good bearer and has almost always a crop, and I find that Alexander keeps much better than I had anticipated. We have some very fine specimens still sound and good from a small standard tree even now at the commencement of a new year. New Hawthornden and Golden Noble are also keeping well, and are well worth growing. I will take some other opportunity of saying a few words with regard to the pruning and training both of Apples and Pears, as it seems to me there is a great diversity

Of opinion on the subject, like that much-vexed question the restriction or non-restriction of Vines, and I think the subject needs more ventilation.—C. P. P.

FAULTY PRIZE SCHEDULES.

MR. MOORMAN had decidedly pointed out what is unquestionably a serious defect in the terms employed in such classes as he quotes on page 37, and which cannot fail to perplex both exhibitors and judges. If Societies like the Royal Botanic adopt such loose terms as those quoted, it is not to be wondered if the schedules of local shows are imperfect. To stipulate for twelve or twenty-four trusses, and then to permit exhibitors to win prizes with thrice that number, is manifestly unfair to those who follow the strict terms of the schedule. It may be said the judges should disqualify those collections that contain a greater than the stipulated number of trusses, but the judges ought not to have such an onerous duty imposed on them when the necessity for it can be so easily avoided by the officials. If in a class for twelve trusses of flowers the prizes were awarded to bunches of several trusses each, and the non-successful exhibitor who conformed with the schedule were to lodge a formal protest against the awards and claim the prize, he would have a good case. If a given number of "trusses" are asked for, only that number can properly compete; if "bunches" are permissible, why cannot the term be employed? Under the circumstances named by your correspondent he may well ask, "What is the difference between twenty-four 'trusses,' or twenty-four 'spikes or trusses?'" There is no difference for the purposes of exhibiting, and the necessity for that question shows how utterly unsatisfactory were the stipulations referred to.

"We often see," says Mr. Moorman, "a schedule stipulating for twenty-four trusses of Pelargonium blooms, and as many as three trusses of each variety are shown; surely this must be seventy-two trusses, but allowed as twenty-four because it is the custom." If it is the "custom" it is a bad custom; and if the custom were admitted your correspondent would not have been able to adduce the example of "disqualification" to which he directed attention. As to exhibiting cut flowers of Pelargoniums, the Pelargonium Society's schedule is commendably explicit, the stipulation being—"Distinct varieties, not to exceed three trusses of each; and the Royal Horticultural Society's schedule, in reference to cut flowers, employs the term "bunches." There can be no doubt of the meaning in those cases, and the sooner such ambiguous terms as your correspondent has pointed out become obsolete the better.

As to the disqualification of a stand of Roses "single blooms," because a bud had expanded in the show, the exhibitor had only himself to blame—he should have removed the bud.

The Kingston plan of exhibiting Pompon Chrysanthemums is good; but the schedule is not quite explicit, for certainly a bunch of three single blooms could not be disqualified.

There is one sentence in Mr. Moorman's letter not very clear. He says a person "exhibiting three stems of disbudded flowers to form a bunch, has a decided advantage over the exhibitor who has pinched off all except three solitary flowers, which are also growing on three stems." Are not the three single flowers the result of disbudding?—A JUDGE.

I CONSIDER Mr. Moorman too conclusive in his remarks on this subject. That the first-prize stand in question was liable to be disqualified I fail to see. Your correspondent admits that three single blooms placed together form a "bunch;" then, if this be so, why disqualify a stand which undoubtedly did contain twelve "bunches" of three flowers? It is a fact, perhaps worthy of notice, that, out of seven stands staged in this competition, only the one previously alluded to contained bunches with more than three flowers.

Mr. Moorman is also open to question when he states that framers of schedules would do well to stipulate for flowers that are grown without disbudding. I am of opinion that the result of this would be a mass of flowers in the majority of cases very inferior in quality to those which have been disbudded; or, again, how could judges prove whether certain bunches had not, to some extent, been disbudded? Your correspondent also states that twelve bunches of three disbudded flowers would produce little or no effect when staged. Had he seen the stand above referred to he would probably have formed a different opinion. The blooms in this surmounted a wealth of foliage fully 6 inches above the board, and for quality of flowers and general effect it was distinctly ahead of that containing larger bunches and smaller flowers.

A disbudded flower of Jean Hachette was recently sent to the

Editor, whose suggestions on page 573 in last volume are well to the point, and worth the attention of those charged with the formation of schedules.—COMPETITOR.

[The bloom referred to us was remarkably fine.—ED.]

NOTES ON VEGETABLES.

LITTLE PIXIE CABBAGE.—For a supply of greens during the autumn and winter months I do not know of anything so delicious as the above Cabbage. According to my taste they are preferable to any of the larger varieties or the Coleworts—in fact they equal Brussels Sprouts. Coleworts as a rule are not so tender, but improve much in this respect after a few good frosts. They are seldom required before Christmas, but there is a demand here for those little Cabbages as they are called early in November. If sown about the last week of June and again in July a good supply will be maintained until after Christmas. It is surprising what a quantity of useful vegetables can be taken off a small portion of ground from which some early crop has been cleared, as they only require to be planted 1 foot between the rows and 10 inches from plant to plant. The ground need not be dug unless weeds have been allowed to become established. Little Pixie will turn in before Coleworts sown at the same time, and should be used first, reserving the latter in case of severe weather.—B.

FORCING SEAKALE AND RHUBARB.—As the season advances the early-forced Seakale and Rhubarb will become nearly exhausted. It is necessary to keep up the supply by covering roots with pots and manure, leaving a crevice in the top of the pots to allow the moisture arising from the heap of manure to escape. The best and strongest roots should have been selected during the past spring, and allowed to grow to maturity and decay without pulling, thus securing good strong crowns. Where forcing houses are available a number of roots should be lifted and planted on the floor under the stages. Avoid planting over bottom heat. To ensure good, strong, and fully developed stems plant on a cool bottom, otherwise they will be drawn up weakly. Seakale may be planted in large pots; inverted pots placed on the top of them will answer very well, and they can be removed. Forcing in houses is preferable to outdoor forcing, owing to the rank moisture arising from the material employed making the vegetables unpalatable, if not carefully guarded against.—Z.

CABBAGE BROCCOLI.—Mr. Gilbert kindly sent me seed of this vegetable for trial. I have grown it two seasons, and find it a great addition to our list of hardy vegetables. It withstands frost better than many other varieties, is good when cooked, and can be had at different parts of the year by making two or three sowings in succession. I hope seed will soon be obtainable by all gardeners. On visiting Burghley a few days since I was much pleased with a large breadth of this fine vegetable. At first sight they had the appearance of a fine bed of hearted Cabbages, but inspection proved them to be of more value. I hope as long as I have to supply vegetables never to be without the Cabbage Broccoli.—W. DIVERS, *Wierton House, Maidstone.*

CAULIFLOWERS.—Were Cauliflowers and Broccoli ever finer, more plentiful, and cheaper than they have been during the present winter? I have seen large close heads, fit for exhibition, sold from the costermongers' barrows in London at "two a penny." As these itinerant vendors must have a profit, and as the salesmen from whom they obtained them are not in the habit of doing business for nothing, it appears to follow that the crop has not been very lucrative to the cultivators. If I were a farmer I should not attempt the cultivation of vegetables extensively; but being a consumer I do not object to any number of farmers adopting the practice, as the produce will not be too cheap for me if it is not for them.—A CITY MAN.

RAISING OLD TREES.—A number of fine old Yews and Hollies, which were blown over by the gale of the 14th of last October at Dirlton Castle, Haddingtonshire, have, we hear, been successfully raised by Mr. Morrison, gardener to Lady Mary Nesbit Hamilton, to whom the property belongs. The trees which have been raised form a portion of those that enclose the ancient and picturesque bowling-green, and are probably nearly three centuries old, although from the rather crowded state in which they have been grown, none of the stems are of extraordinary girth. The task of raising such hoary veterans must have been one of considerable difficulty, and it is very satisfactory to know that it has been successfully accomplished. Hollies and Yews are excellent trees to raise in this manner, and

there is no doubt but these fine old trees at Dirleton will renew their life, and grow with vigour in their restored position for ages to come. —(*Journal of Forestry.*)

BLUE ROSES.

THE accomplished Editor of "The Rosarian's Year Book," in the extra excellent new number, holds out to hope a white Rose of the petal perfections of A. K. Williams. This suggests the inquiry why we should not even yet have attained to a first-class white Hybrid Perpetual. Madame Lacharme is unsatisfactory; Miss Ingram still more so as to substance, though a very lovely white, and then not even a Perpetual; Mrs. Bellenden Kerr and Mdle. Bonnaire (very nearly identical) are rather of a pinky white, and again, like almost all white things, are decidedly more delicate than those of other colours. As Mr. D'Ombain has suggested, a really good white H.P. is still to be hoped for, and is no doubt being striven after by our busy hybridisers. And then there are also other colours to be desired—a yellow H.P., when will that be attained? But the most hopeless Rose of all, I suppose, is that which exists at the present only in the heading of this article—a blue Rose. Will any of us live to see that? There seems just a chance that the violet of Souvenir de Dr. Jamain or Jean Cherpin might by a happy cross be made a light purple; but the blue of the Scotch Blue-bell or the Cornflower, shall we ever see that?

An interesting article by Mr. Grant Allen in the January "Cornhill" goes into the subject generally, and with most discouraging conclusions as to our hopes of blue Roses. I can only give his outline theory and conclusion, but it is well argued out, and the whole article well worth studying. "Briefly put," he says, "the general conclusion at which I have arrived is this: All flowers were in their earliest form yellow, then some of them became white; after that a few of them grew to be red or purple, and finally a comparatively small number acquired various shades of lilac, mauve, violet, or blue." Allusion is then made to bees' fondness for blue as lately shown by Sir John Lubbock, so that blue flowers attract bees, and bees produce blue flowers. Why will they not visit more our sweet-scented Roses? And then follows the further distressing conclusion—"The Roses, as a whole, being a relatively simple family with regular symmetrical flowers of the separate type, have never risen to the stage of producing blue petals. This is why our florists cannot turn out a blue Rose. It is easy enough to make Roses or any other blossoms vary within their own natural limits, revert to any earlier form or colour through which they have previously passed, but it is difficult or impossible to make them take a step which they have never yet naturally taken."

What will Mr. Laxton say to this? Is there no hope? "*Ce n'est que le premier pas qui coûte*;" but will that first step ever be taken? I always regard Mr. Laxton's utterances with much respect; and consequently was alarmed by his warning to Rose-pruners of the present season. It is indeed coming true; we shall be as perplexed as last year, and for opposite reasons. After holding off for long, I unhappy, packed them in fern, and now the shelter from the expected season keeps increasing the excitement. Buds keep breaking all down the branches. Where, I wonder, will be the unstirred buds to cut back to? Mr. Mawley in his historical article may well remark on our uncertain seasons. Of late they have outdone themselves. Uncertainty out-herods Herod. Lord Beaconsfield's observation seems as right in the weather as in the political world—"It is always the unexpected that happens." But, to return to new Roses, it is hardly to be expected that of late we have ripened much good seed in England. I have sown for three years past, but it does not germinate with regularity. Let us keep to the ideal—a white Rose like A. K. Williams.—A. C.

REMOVAL OR NON-REMOVAL OF POTATO SPROUTS.

THE remarkable mildness of the present winter is inducing an extra early growth in Potatoes, and not a few of your readers being placed in the same dilemma as your esteemed correspondent "W. J. M.;" consequently his inquiries on page 25 are most opportune, and will, I trust, elicit information.

According to my experience, to be really successful with Potatoes not a little depends upon the proper storage and preparation of the sets. Change of seed I believe advisable, but unless it is received early and before having sprouted the beneficial effect is not perceivable. Indeed under these conditions only do I give the preference, as the crops secured from late-received and much-weakened sets are seldom satisfactory. I am an advocate of the prevention of undue sprouting, and of the retention of the strong central sprout obtained by storing each tuber on its base, or that end originally connected with the roots. Such

shoots are invariably the strongest the tuber is capable of producing, and if this can be preserved and planted intact, all other side shoots being either rubbed off or the eyes picked out with the point of a knife, other conditions being favourable, the crops will be both heavier and the tubers larger than can be generally obtained from other methods. This, though applicable to all Potatoes, is especially so to the Ashleaf section. I am so convinced of injury accruing to these by the loss of the premier sprout, that, rather than rub off these, even if 2 inches long, as in the case of "W. J. M.'s," I would plant them in that state, provided they are not much weakened by being allowed to lay in heaps, or have become matted with roots.

If I might presume to advise "W. J. M.," I should say, Take the first favourable opportunity of planting the much-sprouted sets in drills not less than 6 inches deep, and earth up the sets by hand prior to levelling the mass of soil. I am well aware by early planting, the young growth as it pushes through the soil is liable to be damaged by frosts; but to obviate this, in addition to comparatively deep planting, I recommend drawing the soil in ridges directly over the sets instead of waiting till the lines are indicated by the delicate growths. This is, or at all events used to be, the plan adopted with both early and late Potatoes in Kent, and in spite of the opposition with which the labourers invariably meet it, the practice still pleases me. A careless workman can easily draw the ridges and therefore defeat the object in view, but a very little practice is needed to do the work properly. The drills should be drawn with a heavy hoe, or, where procurable, a Canterbury hoe—this being a combination tool, and either fork end or half-mattock end being suitable, according to the texture of soil, and the ridges should be formed over the sets from both sides of the drills. This practice I admit entails a considerable amount of trampling between the rows, but this can easily be loosened with a fork.

Potatoes planted near the surface or on the level are much subject to injury by frosts; indeed the growths are often killed, thereby necessitating a fresh start. Now, by adopting the above practice we in the first place have a sturdy sprout, which emits a corresponding number of vigorous roots; and the plants are less liable to be injured by frost, or if they are caught the damage will not be so severe, and fresh growths will be produced to replace those lost. In this case we lose less time, and the crop is not so much lightened.

Though I prefer medium-sized sets, a snip only being taken off each tuber to insure decomposition, I am quite aware much can be done with cut sets, and even with eyes only. I would class those kidneys of the Lapstone type with the Ashleafs; but those of the shape of Snowflake and Woodstock Kidney are not so much impaired by being freely cut into sets. Any Potatoes I intended to cut would be disposed flatly, in order to insure generally even growth, which I like to obtain prior to cutting. The cuts would be immediately dusted over with lime, both to prevent bleeding and also as a protection against slugs or other enemies, and be planted before becoming shrivelled. When Pride of America was first sold in this country I bought a pound of it—three tubers—at a high, and, as it proved, undeserved price. They were placed in a pan, very lightly covered with fine soil, stood on a front stage of a forcing house, and kept moist. Growth soon commenced, this at once emitting roots, and when these were about an inch long the eyes were scooped out and divided, generally into three pieces. The sprouts thus obtained were potted singly into 3-inch pots and replaced in heat, but as soon as established were shifted to a cooler shelf, being finally planted out before becoming much root-bound. From those three tubers we secured sufficient sets to plant a row 40 feet long. The crop resulting was more remarkable for size of tubers than weight; it was badly diseased, and was a disappointment, the variety proving to be too much like Snowflake, especially during the next season.

Sets that present the appearance of being sprouted much too early should have the shoots rubbed off, be placed thinly on end to induce the formation of later shoots as sturdy as possible under the circumstances.—W. IGGULDEN.

HELLEBORUS NIGER.—The Christmas Rose is universally admired for its beauty. Beautiful as it is in bleak December in the open ground, it is more so when lifted and placed under glass in pots. Then it is free from the soil which rains splash up, and the white is purer. To have it certain at all in adverse seasons it needs forwarding. To secure these different results plants are generally lifted, but we think the pieces generally used are much too large. This is easily avoided, for by dividing the plants in open weather after the blooming is done the stock is increased, and fine little plants prepared, which are easier managed, prove more ornamental among other

dwarf plants in plant structures, and less injury occurs when they are lifted, which should be done when the buds show.—S. H.

NOTES ON NEW PLANTS.

CULTIVATORS who desire to obtain all the best new plants which are yearly introduced to this country, or sent out by nurserymen, also wish to learn all they can respecting the merits of novelties before investing very largely in the purchase of such necessarily high-priced plants. To aid others in forming correct ideas upon these points a few notes will be occasionally submitted briefly describing the most attractive or useful plants of recent introduction that come under my notice. At the meetings of the Royal Horticultural Society the majority of each year's novelties are exhibited, and comparatively few gardeners, especially those living at a distance from London, have an opportunity of attending them. The summer shows both at Kensington and the Royal Botanic Society's Gardens, Regent's Park, attract a larger number of horticultural visitors; but even then by far the greater proportion have only the necessarily brief and often hurried reports to rely upon. To commence, some of those plants exhibited at Kensington last week may receive a little consideration.

LÆLIA ANCEPS VEITCHII.—Several pretty varieties of *Lælia anceps* are now known, such as *Dawsoni*, *alba*, *Barkeri*, and *delicata*, and the one named above from Messrs. J. Veitch & Son's Chelsea nursery deserves to take a high position amongst them. The flowers are of good size and substance, possessing a delicacy of colouring that renders the variety quite unique. The sepals and petals are broad, tapering, and pure white, disposed in the manner characterising the species; the lip having the two lateral lobes veined with a light purplish lilac tint; the throat similarly veined with dark red, a yellow blotch in the centre, and the tip of a similar hue to the veins in the side lobes. It is this contrast of tints with the white wax-like petals that imparts so much beauty to the flowers. Wherever *L. anceps* and its varieties are grown, and there are now few Orchid collections which do not include some of them, this variety is well worth a place.

LYGODIUM FORSTERI.—A handsome climbing Fern, and shown by Mr. F. Kettle in excellent condition. It is in general appearance suggestive of *L. scandens*, the sterile fronds being pinnate with four pairs of tapering pinnae, each about 3 inches long; the fertile fronds smaller, with the spikelets closely set along the margins of the pinnae, giving the appearance of being deeply but regularly cut. It is of vigorous habit, and well suited for training to pillars in a fernery. If the name under which it was exhibited be the correct one the plant has been known some years. In the "Synopsis Filicum" *L. Forsteri* is given as synonymous with *L. reticulatum*, but the Fern they have at Kew under that name is quite distinct from Mr. Kettle's plant. It may be remarked that *L. reticulatum* and *L. heterodoxum* have been by some botanists referred to the genus *Lygodictyon*, but they are now generally included with the *Lygodiums*. This Fern was exhibited under the name of *L. Fulcheri*, but as no species is known by that name it was considered a misrendering of *L. Forsteri*; it is said, however, to have received the above name from the exhibitor's employer, H. E. Green, Esq., Kingsford Stanway, Colchester, in honour of a gentleman who introduced it from Australia.

ERICA HYEMALIS ALBA.—Comparatively few Heaths are at the present time grown in numbers sufficiently great to entitle them to the designation market plants. *Erica gracilis autumnalis* and *vernalis* and *E. hyemalis* are the three most extensively grown for market. *E. melanthera* is also becoming a great favourite; and the white variety of *E. hyemalis* which has been secured by Mr. Kinghorn of Richmond will probably in a few years take its position among them. It possesses all the recommendations of the species as regards freedom of growth, habit, and floriferousness, but it is strikingly distinguished by the pure white flowers that do not possess the slightest tinge of colour. It originated as a sport from *E. hyemalis*.

PRIMULA HOLBORN GEM.—Very interesting is this variety, as it indicates a remarkable break from the usual type of the variable *P. sinensis*. We have shades of crimson, pink, purple, and pure white, and one I have seen with a distinct yellow tint, but *Holborn Gem* is certainly the first near approach to a blue-flowered variety. Blue is scarcely well represented in the whole genus *Primula*. Perhaps we have the nearest shades in some varieties of the common *Primrose*, but I do not know a species having blue flowers, though some are purple of various hues, and therefore including somewhat of the tint. It is not easy to find an appropriate term for the colour of Messrs. Carters' *Primula*. It unquestionably possesses a blue shade, and this was much more evident in the plants recently exhibited, as it had apparently deepened.

The flowers, too, are large, of good form, and the habit dwarf—valuable recommendations.

COLUMNEA KALBREYERI.—This is one of Messrs. Veitch's introductions, and deserved something more than the botanical certificate awarded for it by the Scientific Committee. It is a handsome plant for a stove, and would contrast well with smaller-growing or slender plants. The leaves are a foot or more in length, elliptical, arranged in two rows on opposite sides of the stem in what might be termed a distichous manner. The upper surface is bright green, but the lower surface is a deep red colour, very striking and attractive, especially when the plants are placed so that the leaves can be seen to the best advantage. The flowers, which are yellowish, do not add much beauty to the plant, being closely clustered on the stems.

TECOPHILÆA CYANOCROCUS.—This charming little bulbous Irid as shown by Mr. G. F. Wilson was greatly admired, and few



Fig. 10.—*Herbertia pulchella*. (See page 48.)

visitors have previously had an opportunity of seeing it in flower. It was introduced about ten years ago from the island of Juan Fernandez by Messrs. Haage & Schmidt; a figure was published shortly afterwards in the *Gartenflora*, and the plant was also described in the "Gardener's Year Book" for 1872. Although it attracted much attention from many admirers of such plants, it does not appear to have been grown in many collections in England. Several years ago it flowered at Kew, but I have not heard of it elsewhere until Mr. Wilson's plant was shown. It is very diminutive, with narrow leaves about 3 or 4 inches long, the flowerstalk being of similar length. The flowers are 1 or 1½ inch in diameter, with six oval very bright blue petals, or, more strictly, perianth divisions. The plant may be grown either in a cool house or frame.

TRICHOCENTRUM PRAVIL.—The name of this genus is probably not familiar to many Orchid growers, as it does not include many species, nor are those hitherto known of remarkable beauty. The

species named above, however, is a recent discovery, and has very pretty though not showy flowers. It is a native of Central America, and received its name from Professor Reichenbach in honour of its discoverer, a Swiss collector. The flowers are about an inch in diameter, produced singly or in pairs on short peduncles. The sepals and petals are narrow oval, with the margins slightly undulated. They are white, each with a transverse bar of bright brown, the lip having a bright rose blotch in the centre. The plant is epiphytal in habit, and was shown by Messrs. Sander growing on a flat block and flowering very freely.—L. C.

USEFUL POTATOES.

I HAVE read the interesting remarks of "SCOTCHMAN" on page 4, and in many respects I agree with what he says. There is such a wonderful difference in Potatoes when grown in different soils and situations, and under different kinds of management, that a Potato which one person finds answer his purpose very well does not give satisfaction in another. Although this is the case he speaks highly of the Magnum Bonum not only as a disease-resister but as being a Potato of good quality. I have heard complaints with regard to this Potato, and some people go as far as to say they never tasted a good one; other people call it first-rate, and speak of it as one of the best for quality there is. My experience of it lies between the two. If we were to have a Potato Derby I think Paterson's Victoria, Scotch Regent or Snowflake would probably come in before the Magnum Bonum in point of quality—that is to say, I do not think the best Magnum Bonum I ever tasted was equal to the best Scotch Regent. Notwithstanding this there is no fault to find with the Magnum Bonum grown on my land this year, and I should not be ashamed to send them to any gentleman's table. I have packed up a small hamper for the Editor to report on, and to say whether they are not good boiled and also baked, in fact about as good a Potato as anybody need wish to eat. They were grown on garden land tolerably free from trees; the soil is a light loam, and no manure was used with the crop, and the seed was a change, having been grown on land a few miles away. Tubers of a good shape and medium size were planted, and a few of the largest cut in halves. The distance between the rows was 2 feet 8 inches.

With regard to the quality of the produce, I do not approve of very large quantities of manure being used, neither do I approve of planting in a poor soil without any. I prefer land in fair condition or a moderate quantity of manure. As to the time of harvesting, there is no necessity to be in so much hurry about the Magnum Bonum as some kinds, but there is more risk of disease when the crop is left in the ground a long time. Mine were dug up in October and were in very good condition. Then some seasons they might be lifted earlier, but you cannot very well lay down a hard-and-fast line for all soils and situations, and something must be left to the judgment of the grower after all.—AMATEUR, Cirencester.

[The tubers were just of the right size for table, not too large, and their quality excellent.—ED.]

VINERIES AS PLANT HOUSES IN WINTER.

THERE is at page 5 a remarkable paper by "NOR'-EASTER," which I hoped to have seen discussed by those writers who have used vineries in winter successfully in the way "NOR'-EASTER" uses his. There are, we fear, too many in your correspondent's position, but not many, we imagine, have solved the problem so boldly as he has done. We use every available space under our Vines in winter; but it is to store bedding plants, Fuchsias at rest, Deutzias, and other plants, which only require frost excluded from the structure where they are placed to insure their safety.

The temperatures given by "NOR'-EASTER" as suitable for resting Vines are a trifle over what most gardeners consider sufficient for starting Vines into growth. Does he ripen them very late, so that they will bear heat without starting? or are they, like the skinned eels, used to it? "However it be, it seems to me" such treatment would not suit ours, for we find that when the temperature rises above 45° to 55° they are certain to start even in winter; but then we ripen them early, and we accustom them to a low temperature afterwards.

The vision of Pclargoniums in flower all winter in a vinery, and Azaleas, Heliotropes, and other plants as well, is rather tempting, for we are in such a position that a winter display is very difficult to provide for want of such conditions as might be had did we dare to risk our Vines starting before their time.

We desire more light, for though not faithless and unbelieving, we should like to see a good array of trustworthy evidence before

venturing on such thin ice. Is there anything more to be said on the point?—WISTFUL.

HARDY GARDEN FLOWERS—POPPIES.

THE large perennial Poppies, during the splendid but brief reign of their flowers, are amongst the most showy plants which can be used in the back row of a long border. They also have this great merit, that the leaves die with the flowers, and that all the flowerstalks, unless one or two heads are wanted for seed, may at once be cut down to the ground without injury to the plant. Thus the dormant crown may be overgrown and forgotten, until the leaves, which are never untidy, appear again in autumn. The two finest Poppies of this class are *Papaver bracteatum* and *P. orientale*, of which the former is the best. I used to grow a row of it in my garden at Eton, at the back of a straight border 70 yards long. All the plants had been raised by me from seed, and when once placed were never disturbed. They continued to flourish without any care for twenty-five years, until I left the place, and I daresay are flourishing still. Each plant used to produce six or eight flowers 6 inches across, growing upright on stiff stalks more than 4 feet high. They generally were in full flower on the 4th of June, which was our great show day at Eton, and my visitors used to call them my regiment of grenadiers, and often asked for some seed, though they seldom succeeded in rearing them. The Poppies were mixed in the row with clumps of *Iris pallida*, in flower at the same time, the colour of which was Eton blue, and very gay they certainly looked.

The root of these Poppies is so large and long, being nearly like that of a Carrot, that they do not divide well or transplant well, except when young, and the best way of obtaining a stock is to raise them from seed. It is said that the seed of all the Poppy tribe germinates best when sown as soon as ripe, and if the seed which ripens in July can be induced to grow at once a year may be saved. I have generally, however, been more successful with those sown in spring. The seed, being very small, should be sown thinly in pans in fine soil and placed under glass, being watered carefully. The seedlings should be transplanted into boxes as soon as they are large enough, and encouraged by shading and watering to continue to grow; but do what you will, after about two months' growth the leaves decay and the plants disappear. At this stage the gardeners of most of my friends to whom I gave seed threw them away, being glad of an excuse to get rid of any of that despised class, hardy herbaceous plants, and failing to notice the minute live crowns and single tap roots which were hidden beneath the soil; but when kept and well used they start into growth again in October, and continue growing through the winter. In the spring of the second year they may be planted singly or two or three together in their permanent place, which should be tolerably open and sunny, though they are not fastidious about either situation or soil. They will, perhaps, not flower till they are two years old, but when once established will continue to flower every June for at least a generation. Such is the history of *Papaver bracteatum*. I own it is rather a difficult plant to raise. I have often sown seed of it in the open ground, but have seldom succeeded in raising a plant in this way, and I have rarely seen a plant come from self-sown seed. Perhaps the experience of some of your readers may be different, if they are more favoured in their soil, and in the absence of slugs and worms and heavy rains. To those who wish to stock their gardens I would say, Make several sowings at intervals of a week; one successful sowing will supply you with plenty of plants, but you may have some unaccountable failures.

Papaver orientale is similar in habit to *P. bracteatum*, but it is not so tall nor so upright; the colour of the flower is distinct, being orange red instead of dark scarlet. It has a more spreading habit than *P. bracteatum*, and if left alone makes a larger clump.

A new biennial Poppy, *P. umbrosum*, is a plant which I recommend to the notice of all gardeners who have not yet tried it. When grown as an annual it is not seen to advantage; but the terms "annual" and "biennial" are often used so vaguely that I must explain what I mean; indeed, Nature allows plants to be indefinite and inconstant in this respect. Some plants called biennial never flower in the first year of their growth from seed, some often live two or three years without flowering, but die as soon as they have flowered and ripened seed; some flower the first year and again the second, and then die. Then as for annuals, some plants are called annual which do not observe seasons at all, but produce generation after generation two or three times a year as fast as the weather allows them to ripen seed; this especially applies to weeds of cultivation like the common Groundsel. But perhaps the simplest idea of a biennial is when the seed of a plant germinates as soon as it is shed when ripe, and, having passed a winter

without flowering, flowers and dies in its second year; and of an annual when the seed of a plant, ripened and shed in summer, remains dormant until the following spring, and then grows and flowers and ripens seed and dies within the year. This is the nature of many plants, but by gathering and storing seed many biennials are made annuals, and many annuals biennials. But *P. umbrosum* becomes by comparison a poor plant when grown as an annual, especially if it is subjected to that miserable treatment which annuals generally have in ordinary gardens, being sown in a dense mass where they are to flower, and left to struggle with one another for breathing room.

The success of *P. umbrosum* depends upon giving it abundance of room at every stage of its growth. Beware of allowing it to become crowded in the seed pan, or it will throw up a flower-stalk prematurely before winter and be spoilt. Give the seedlings abundance of breadth to spread their wide crown of horizontal leaves over the surface, and keep them growing by copious waterings. They may be readily transplanted with a trowel to their flowering place any time in autumn. No amount of frost hurts them; I transplanted some in January last year, all of which did well. Each plant should have a circle of 2 feet in diameter to itself in a sunny position. Treated in this way they will produce such a display of large scarlet flowers in May and June as no other plant can equal.

I need not say much about annual Poppies. The best varieties of the double annual Opium Poppy (*P. somniferum*), which are pure white and bright scarlet, have showy flowers but an untidy habit, and only suit a wilderness garden. The double varieties of the common field Poppy (*P. Rhæas*), are pretty if well grown on suitable soil, but these conditions are seldom fulfilled. Of the alpine Poppies I may perhaps speak at another time.—C. WOLLEY DOD.



WE learn that the vacancies created by the death of Dr. Denny and the retirement of Sir Charles Strickland and Mr. Arthur Grote from the Council of the ROYAL HORTICULTURAL SOCIETY, have been recommended by the Council to be filled by Edmund Giles Loder, J. H. Mangles, and William Lee (Leatherhead). Major F. Mason is recommended for the office of Secretary, vacant by the retirement of Dr. Hogg; and Mr. Haughton as Treasurer, by the retirement of Mr. Henry Webb. The Annual Meeting takes place on the 14th February.

— THE Committee of the FARNINGHAM ROSE AND HORTICULTURAL SOCIETY have altered the date of their Exhibition to June 29th, instead of July 1st, as announced.

— A CORRESPONDENT, F. F. Woolton, in answer to "EBOR," on page 36, relative to the SEVEN JAPANESE CHRYSANTHEMUMS INTRODUCED BY MR. FORTUNE IN 1862, states the following, most of which are in cultivation, can be procured from nurserymen who advertise Chrysanthemums as a speciality—Bronze Dragon, Roseum Punctatum, Striatum, Laciniatum, Grandiflorum, Japonicum, and Yellow Dragon.

— MESSRS. JAMES CARTER & Co., High Holborn, write as follows respecting the FLOWERING OF *DRACÆNA GOLDIEANA*—"Observing your remarks upon this plant at page 30 of the last issue of the *Journal of Horticulture*, we may mention that we have lately had this variety in flower at our nurseries, Forest Hill, where it was amongst others shown to Mr. Barron, who admitted the occurrence was rare and novel."

— THE schedule of the ROYAL HORTICULTURAL SOCIETY'S ARRANGEMENTS FOR 1882 has been issued, and gives full particulars of all the exhibitions to be held during the present year. In addition to the Meetings and Promenade Shows which have already been noticed, the following Exhibitions will be held at South Kensington—National Auricula Society (Southern Section),

April 25th; Summer Show, May 23rd, 24th, and 25th; Exhibition of Garden Structures and Appliances, May 23rd to July 5th; Pelargonium Society, June 27th; National Rose Society, July 4th; and the National Carnation and Picotee Society, July 25th. During the season the following nurserymen will offer special prizes, to be competed for at the Society's Shows and Meetings—Messrs. Sutton & Sons, James Carter & Co., Hooper & Co., Webb and Sons, J. E. Ewing, Daniels Bros., and Webber & Co. Special prizes will also be offered by a Fellow of the Society on March 28th for Hyacinths, Tulips, and Amaryllises.

— MR. SUMMERS informs us that the RAINFALL AT SANDBECK PARK in 1881 amounted to 27.30 inches, rain falling on 171 days. In 1880 the amount was 34.87 inches on 170 days; 1879, 28.61 inches on 209 days; 1878, 26.88 inches on 179 days; 1877, 31.50 inches on 163 days. From the above figures it will be seen that the rainfall of the past year was 7.57 inches less than 1880—a difference of over 180,000 gallons per acre.

— WE regret to learn of the death of CHARLES WALTER ORMISTON, of the firm of Ormiston & Renwick, seed merchants and nurserymen, Melrose, which occurred on the 14th inst., in his twenty-second year.

— IT is worthy of record that the mercury of the BAROMETER has been higher during the present week—namely, 30.91 inches on the 17th inst., at Greenwich than has been registered since February 11th, 1849. Other notably high readings occurred on the 4th March, 1854, when it rose to 30.85 inches, a third on the 6th March, 1852 (30.84 inches), a fourth on the 18th February, 1878 (30.83 inches), and a fifth on the 9th January, 1859 (30.82 inches). In other parts of Europe the barometer has on various occasions reached as high a point, and instances have been known in which it has touched or even exceeded 31 inches.

— A DAILY contemporary has the following note on WINTER IN NORTH AFRICA—"Winter has been heard of at last. While the people of Washington have been throwing open their windows to welcome the balmy breath of Christmas, and while residents in our own southern counties continue to write letters describing how they gather wild flowers in Surrey lanes and Sussex woods in January, the cold is so intense on the Sahara frontier in Africa that four hundred camels belonging to a French column have died in a single day, and many more are reported to have perished in the snow. Just now it looks as though the world is being turned upside down."

— "A GROWER" writes—"Your correspondent in your last issue, 'NOR-EASTER,' mentions various methods for obtaining late Chrysanthemum blooms. Has he grown one of the new Japanese varieties sent out last year by Messrs. Cannell & Sons, Swanley, Kent? I mean CHRYSANTHEMUM 'MRS. CHARLES CAREY.' It is pure white, though apparently a seedling of James Salter, but, unlike its parent, it is a very late and free-growing variety. On and since the 24th December I have cut over fifty blooms, all fine examples, from one plant. I consider it worthy of a place in every collection, and a most valuable addition to the white flowers so much in demand at Christmas time."

— MESSRS. CORRY, SOPER, FOWLER, & Co., 18, Finsbury Street, E.C., have now nearly ready for shipment some very handsome DESIGNS IN CORK FOR A FERNERY IN THE KING OF SIAM'S PALACE. The principal portion consists of five frames, each about 10 feet in height and width, most artistically constructed, being covered with cork coloured to resemble a true rockery, with a pool at the base for Water Lilies and other aquatics, with numerous pockets and recesses in which Ferns will be placed. Several jets of water are arranged so that the whole surface will be constantly moist with water dripping from the stalactitic projections at the upper part. Spaces are left at the

back, which are to be filled with mirrors; and as each of these artificial "rockeries" will occupy an alcove, and the five will be disposed in one line, the effect when they are fully furnished will be magnificent, and probably, in its kind, unrivalled. A large number of ornamental cork and terra cotta brackets and stands for Fern cases have also been prepared of various rustic designs and diverse sizes. Altogether, both the designs and the execution are the best we have seen in this mode of employing cork.

— THE annual dinner of the HORTICULTURAL CLUB took place on the 10th inst. at the new rooms of the Club, 13, Henrietta Street, Covent Garden, Mr. John Lee in the chair. There was a large attendance of members, and the new arrangements necessitated by the dissolution of the Temple Club were much approved; and it was hoped that, now that country members can obtain bedroom accommodation in the house at reasonable charges, the number of members would be increased. Mr. Lee, in proposing prosperity to the Club, remarked on these points. It was stated by the Secretary, that although the number of members was not so numerous as they might reasonably expect, yet the Committee had been enabled to increase their funded property and to have a good balance in hand at the close of the year. Mr. Thomson of Clovenfords contributed to the dessert some of his magnificent Grapes, and Mr. L. A. Killick dishes of some of the best Apples in cultivation. The following new members were admitted—Thomas B. Hall, Larchwood, Rockferry; E. R. Whitwell, Barton Hall, Darlington; William Mount, Canterbury; Frank Burnside, Farningham; John S. Cousens, Snaresbrook; and William S. Parker, White Lodge, Barnet.

— WE learn that Mr. THOMAS MUIR, who has been gardener for some time past to Lord Hill Trevor, Brynkinalt, has been appointed gardener to Lady Mary C. Nesbit Hamilton, Beil, East Lothian. Mr. Muir, we have good reason to believe, will maintain the high character that attaches to her ladyship's other gardens at Archerfield and Bloxholm.

— ADMIRERS of simple but graceful flowers would no doubt appreciate the samples of *CINERARIA CRUENTA*, *AGATHÆA CŒLESTIS*, and *CHRYSANTHEMUM FRUTESCENS* exhibited by Messrs. H. Cannell & Sons at Kensington last week. The combination of tints was most pleasing and very suggestive to bouquetists and all who desire simple beauty without gaudiness. The *Cineraria*, as doubtless many readers know, has narrow spreading florets of a bright purplish hue, the *Agathæa* has broader florets of a light blue colour, and the *Chrysanthemum* is white. All are termed single flowers with yellow florets in the centre.

— MESSRS. NUTTING & SONS, London, send a coloured plate of their NEW PEA WALKER'S PERPETUAL BEARER. It represents a variety of moderate height, robust growth, and apparently a good cropper. It may be remembered that the raiser, Mr. J. Walker of Thame, secured a first-class certificate for the variety at Kensington last year.

— THE last work of the late Mr. H. C. Watson on the distribution of British plants was his "TOPOGRAPHICAL BOTANY," published in 1873-4, in which he traced the dispersion of each species through the 112 vice-counties of Britain which he adopted. Of this book only one hundred copies were printed for private circulation, and these were all given away by the author immediately. Since its issue a large amount of new material has been accumulated, principally through the exertions of the members of the Botanical Record Club, and at the time of his death, last autumn, Mr. Watson was engaged in the preparation of a new edition. This he did not live to complete as regards its prefatory and explanatory portions, but he had kept an interleaved copy, in

which he regularly entered up every record of any plant in a new district that was brought to his notice. At his own special request this was deposited with his herbarium at Kew, and from this it is now proposed to prepare a second edition of the book, which Mr. Quaritch has undertaken to publish, and Mr. J. G. Baker of the Royal Gardens, and the Rev. W. W. Newbould, to make ready for the press.—(*Nature*.)

— MR. R. INGLIS, referring to the late DISCUSSION ON VINES, states it was not his intention of returning to this subject; "but as Mr. Bardney's reference to a certain article of mine, which appeared in a contemporary some years ago, would lead those of your readers who have not read the article in question to believe that restriction with me was a necessity, I therefore think it advisable to state that the paper in question will be found at page 493 of 'The Gardener' for 1878, by any who is sufficiently interested to look it up, and they will find your correspondent's reference to it does not convey much idea of the object for which it was written."

— THE handsome and unique specimen of *CARYOTA URENS* in the Palm house at Kew has at last been cut down and removed, for it had even exceeded the liberal space allowed it in the centre of that house, and had reached the top of the highest lantern. It had a fine straight stem a little more than 2 feet in diameter at the thickest portion, and decreasing very slightly to the summit, which bore a crown of fine fronds when in its best condition. Concerning the uses of this Palm the following note may be interesting—

"The Wine Palm (*Caryota urens*) is a lofty tree, a native of India, and bears fruit the size of a Plum, the flesh of which is so acrid that it corrodes and burns the lips, and hence the specific name. In Ceylon the tree yields a sort of liquor, sweet, wholesome, and no stronger than water; it is taken from the tree twice or thrice a day, and an ordinary tree will yield three or four gallons. This liquor is boiled, and forms a sort of sugary syrup, called jaggery, which is supplied by several others of the family. When the tree arrives at maturity a small bud appears at the top; this bud is cut and prepared by putting salt, pepper, lemons, garlic, and leaves over it, which keep it from ripening; a slice is cut off from the end every day, and the liquor drops into a vessel set to catch it. The buds, like those of the Betel and Cocoa, are excellent in taste, resembling Walnuts and Almonds. A sort of sago is obtained from the pith, which the natives make into bread, and boil into a thick gruel, forming a great part of the food of the people. The tree is called *Evim-pannah* in Malabar, *Jeroogoo* in Zelinga, and *Kittul* in Cingalese. The trunk is a foot in diameter, and the leaves are 20 feet long by 12 feet across. The fibre, called *Kittul* fibre, is of great strength, and used for cordage, brooms, brushes, baskets, and caps, and from its great strength is used for tying wild elephants. The leafstalk affords the natives an excellent fishing-rod by merely stripping off the leaflets, and is well adapted for this purpose, being light, tapering, and elastic. The woolly material found at the base of the leaves is sometimes used for caulking ships."

— A CORRESPONDENT writes as follows—"At the last meeting of the Royal Horticultural Society a second class certificate was awarded to Mr. Aldred of Bexley Heath for *PELAGONIUM SURPRISE*, a sport from *Vesuvius*. I should like to know why this second-rate honour was accorded for what in the opinion of several good judges is equally as distinct and meritorious as some forms in the same genus which have received a higher award. The flowers are of excellent form, the trusses dense, the habit compact, and the bright salmon colour very distinct and effective. In all the chief characters it resembles *Vesuvius*, differing only in the colour. That it will be a useful plant I have no doubt, and I fail to understand the motive of the Floral Committee in thus, as it were, officially condemning it."

— REFERRING to the DIAMOND TUBEROSE, of which we gave an illustration on page 583 last volume, the "American Gardener's Monthly" for January has the following, which we recommend to the attention of our readers—"After our letterpress was struck off for last month we received a brief note from Nanz and Neuner not to make any note of it. It was of course too late.

After this the advertisement came to the publisher withdrawing offers to sell it. Since then we have had notes from Peter Henderson, V. H. Hallock, Son, & Thorpe, to the effect that a Tuberosa under this name was offered to them, and found to be in no way different from the Pearl, and suggesting that Nanz & Neuner had been victimised. Whether Nanz & Neuner had this suspicion when making the advertisement above referred to we do not at this moment know. For fear there may be something wrong we think it due to our readers to make this cautionary signal, as the weather men would say." We join in this caution signal, for

after all it appears as if the reputation for accuracy of description and delineation which Messrs. Nanz & Neuner won by the double Bouvardia may not be maintained by their Tuberosa, and the expressive Americanism "Go Slow" certainly appears to apply in this case.

— THE *Journal des Roses* for January of the present year gives a coloured plate of the ROSE BOIELDIEU, a free-flowering variety with large, full, bright cherry-red flowers. It was raised by M. Margottin of Bourg-la-Reine in 1877, being obtained from



Fig. 11.—BIGNONIA VENUSTA.

Jules Margottin crossed with the variety Baronne Prévost. It was exhibited at Paris in June of the above-named year by the raiser, and was then greatly admired. It may be remembered that Messrs. W. Paul & Son, Waltham Cross, exhibited specimens of this Rose at one of the Royal Botanic Society's shows in 1878, when a first-class certificate was awarded for it.

BIGNONIA VENUSTA.

THE sprays of this beautiful climber shown by Mr. C. Green, gardener to Sir George Macleay, Pendell Court, Bletchingley, at

Kensington recently were greatly admired by all who saw them. Flowering at this time of year, and so profusely, its value cannot be over-estimated, especially as the colour is so bright and effective. The flowers are tubular with five oblong lobes, very bright orange in colour, and are produced in terminal axillary clusters of several dozens. The truss represented in fig. 11 is one of average size, and the beauty of a plant trained to the roof of a house and bearing some hundreds of such clusters can well be imagined.

Mr. C. Green has favoured us with the following outline of his method of culture:—"The chief requirements of *Bignonia venusta* seem to be a good well-drained border, consisting of turfy

I am 3 feet deep, liberal supplies of water during the season of growth, liquid manure occasionally, and frequent syringing to maintain a healthy growth. It is never shaded here, or cut-in till after the flowering is over. The house in which it is grown falls to 45° sometimes during winter, though not an airy greenhouse. Some grow this species with success under stove treatment, and this will serve to show that to name the native country of any particular plant does not always suffice. From Brazil (where this species is said to be found) we have stove, greenhouse, and even hardier plants than this."

MIMULUS CARDINALIS AND ITS VARIETIES.

A SPANISH proverb tells us "that it is sometimes worth while to appear in the wrong;" and it is almost worth my own while to appear so, seeing that the assumption of my incorrect quotation from Maund's "The Botanist," induced Mr. Wolley Dod to "put in his thumb" (into Maund's "Botanic Garden") "and to pull out a plum" (*Mimulus rosco-cardinalis*), and to say, "what a good boy am I!"

Mr. Dod, being a classical man, will not have forgotten the story of the two doughty knights who quarrelled as to whether a certain shield was silver or golden. They sat upon their horses, the one in front and the other behind the shield, and so argued the matter—indeed fought over it; and then a little actual examination showed the fact that the shield actually was golden in front and silver behind!

In my note on page 13 I never said a word about Maund's "Botanic Garden." I was quoting from Maund's "The Botanist," and if Mr. Dod will kindly refer to that work I fancy he will own that I quoted the facts correctly. I am so careful in making quotations from books to give chapter and verse, and have hitherto received so much credit for it from my friends on the horticultural press, that I cannot allow Mr. Wolley Dod's own blunder to appear as "a correction" of what was perfectly true and rightly quoted on my own part.

This little oversight on Mr. Dod's part aside, I am very much obliged to him for the additional information about *Mimuli*, which his note brings from obscurity—indeed, as I before observed, it was almost worth while my being wrong to have gained so much information.—DUBLINENSIS.

HORTICULTURE IN 1881.

THE kindly words which "WILTSHIRE RECTOR" has addressed to us on the opening year will, I am sure, be appreciated by all who care for wise counsel and sound judgment; and if I venture to supplement his remarks it is not for the purpose of encroaching upon his "official" position as chaplain, but because I may take a different standpoint and perhaps a little wider view.

Amidst all the discouragements that we have had to lament for some years in trade and agriculture it is, I think, true that horticulture not only has had no depression to complain of, but has had, on the contrary, progress to announce, and this has been the case in 1881. I have the opportunity of seeing much that is going on in the horticultural world both amongst those who cater for the public and in private establishments, and I am sometimes taken aback at the amazing amount of energy, enterprise, and capital that is expended. Can any greater proof of this be given than the wonderful exhibition held at Manchester in August?—an exhibition the like of which has never been seen in England, and of which we shall most probably never see the like again. I say this because I think there is no place but Manchester where it could be done. It was indeed a triumph of British horticulture; and when we looked at the magnificent display of fruits there shown, and knew what expense and pains had been bestowed on them, and I recollected what had been seen in other places, I could not but exclaim, Well, after all England is the land of fruit! People write about the fruits in France and the grand display in their markets, but for quality and beauty of appearance it is impossible to match our hothouse productions.

Take, again, Orchids, the very aristocracy of flowers. Can anything be more astonishing than the vast increase in their culture of late years? Establishments unknown some years ago have not only sprung into existence, but have, as in the case of Mr. Sanders of St. Albans, attained large proportions. Or see what Mr. Bull has done at Chelsea—long rows of houses exclusively devoted to their culture, with thousands of plants of the same species, and this while the long-established houses of Veitch, Low, and others are also increasing their culture. Look again at the sales which have taken place at Stevens's of imported Orchids, the tens of thousands of plants which fall under the hammer there. Or, again, the sale of such a collection as that of Mr. Day's of Tottenham which took place during the past year, when £10,000 was obtained for them,

representing, no doubt very inadequately, the money that had been expended on bringing them together. All these things lead to the conclusion that the past year has been a successful one. I may here say, that in traversing the country I have not been into one nursery during the past year where I have not seen signs of increasing trade—either fresh pieces of ground taken in, new houses erected, or new branches of horticulture entered upon. I do not enter into the question of profit, but I simply notice facts.

One effect of all this has been to place this lovely and curious tribe within the reach of the multitude; for while high prices are still given for anything new and rare (as witness Mr. Day's sale), yet many lovely species are now priced as low as softwooded plants. Indeed this increase of supply has cheapened nearly all horticultural products. I can well remember the time when new *Pelargoniums* were brought out at five and three guineas a plant, new *Carnations* at two guineas a pair, and so on; now more moderate prices have to be asked because more are in the field, or improved methods of culture have multiplied the plants. Coming to that class of plants which I have more especially followed during the past half century—florists' flowers, we still find the north far ahead of the south in their zeal and energy; and while very laudable efforts have been made to revive the taste for them, as yet we cannot say the success has been commensurate with the efforts. The fine exhibitions of *Auriculas* and *Carnations* held in London have been much indebted to midland and northern growers, but the change of schedule in the former flower giving a better chance for smaller growers may perhaps give it an impetus; but no signs of resuscitation have touched the *Pansy* or the *Tulip*. The closing weeks of the year have, however, brought out a very laudable, and I hope successful, attempt to revive an interest in that grand autumn flower the *Dahlia*, which years ago used to be so successfully grown and exhibited in London. It may be that we shall see a revival of the old days of the Surrey Gardens; and although but few of those who then entered the lists are now to the fore, yet there are some veterans who would be glad to fight over again the battles they engaged in before time had silvered their hair or taken away the elasticity of their gait. It augurs well for it that Mr. George Smith of Edmonton has already undertaken the post of Honorary Secretary. The *Gladiolus* still remains in the shade. The Crystal Palace Company indeed offered prizes, but they fixed their show for a Monday, to some of us an impossible day.

The vast amount of information now given on all subjects in the horticultural press must leave no secrets to be learned; the only difficulty is what advice to take. We see the most opposite opinions offered on the same subject (*Grape Vine* culture for instance), so that it is extremely difficult to know which to follow; and as the adopting of any one system involves a year or two's cultivation, and life is so short, we should like to be sure of the best plan. I have seen during the past year the most opposite directions given for the cultivation of a small plant, and we can only take comfort in the thought that plants are more accommodating than is ordinarily supposed and adapt themselves to various modes of treatment; but thanks to the many able writers on all branches of horticulture, ignorance on any subject we may wish to follow is unpardonable. One magazine with which I was for many years identified—the "Floral Magazine," has finished its course with the closing month of 1881. Its best days were when James Andrews (whose drawings have often been laughed at, but who after all could colour as no other artist did) executed the plates. It is a pity that it should have ceased, for, however pretty chromos may be, they lack the brilliancy and texture of hand-coloured lithographs, and there is generally a flatness in their execution which is very painful.

The past year has exhibited an increase in the cultivation of hardy plants and the diminution of bedding-out, which to all lovers of plants is very gratifying. I cannot say so much for the mania for single in preference to double flowers. Single *Dahlias* are very delightful for bouquets, and so are single *Pyrethrums*; but when we are told that the double varieties must be ousted and these alone grown, one must demur. Equally great would be the mistake of putting away bedding-out altogether. It would be a sorry thing to see our public parks changed in this respect; while, on the other hand, one must rejoice that there is a prospect of a grand rockery being made at Kew, and thus encouraging a taste which can and does give so much satisfaction to all who can carry it out.

Of the queen of flowers I have already had my say, and can only add that everything seems to show an increased love for it. So far we have had an extraordinary winter. I am writing this with the window open. I gathered this morning an exquisite bud of *Madame Lambard* from the open border. What may

follow none can tell. The quidnuncs who told us of a glacial wave, &c., are fairly puzzled. I will not prophesy, but can only express a hope that this year may not be as the last, but a good one for all who are interested in a garden.—D., *Deal*.

BLUE ROMAN HYACINTHS.

WE have forwarded a pot of blue Roman Hyacinths for your criticism, and which is almost the only pot we have, as we grow it in pans and boxes only for cut flowers, for which we still maintain it is most valuable. We cut from three to four spikes of flowers from each bulb. They are not large spikes, but being small makes them the more graceful. We would like to ask "CULTIVATOR OF BULBS" if he discards the blue Roman Hyacinth where he would get such beautiful blue flowers at Christmas to take their place? We have so great a demand for their flowers that we could not send you a pot earlier, nor even a box of flowers. We have cut many sprays from pans with ten and eleven pips on each. When "CULTIVATOR OF BULBS" can give us something better in place of it, then we may, perhaps, cast it away, but until then we shall certainly claim for blue Roman Hyacinths a place amongst the best and most useful of plants for cut flowers at the Christmas season.—JONES & SONS, *Coton Hill Nursery, Shrewsbury*.

[The pot we have received is 6 inches in diameter; it contains six plants and thirty spikes of flowers, bright in colour and very fragrant. The spikes are quite large enough for bouquets. It is the best pot of this variety of Hyacinth we have seen. What is the origin of the "Blue Roman Hyacinth?"—ED.]

KEIGHLEY NURSERIES.

A RECENT advertisement of Carter's Prolific Raspberry reminds me of a visit I some time ago paid to its home and raiser, for Keighley is its home, and its raiser is the very experienced and much-respected proprietor of the nurseries, Mr. John Carter.

Keighley is a busy Yorkshire town within easy distance of Bradford, or if it is reached from Leeds the branch is at Shipley. Passing through Saltaire, a monument of commercial success, less than half an hour's run brings us to our terminus. The country traversed is much undulated, indeed in places almost rugged, and the hills are clothed with Sycamores—a tree that is found to thrive almost better than any other in high and exposed positions, while the timber is proving of great value to an important industry at Keighley, and indeed of many other places, but of which this Yorkshire town has perhaps the pre-eminence—namely, the manufacture of washing and wringing machines and laundry utensils generally. Almost every Yorkshire home however humble has its washer or wringer, or both. They are considered simple necessities of existence; and Keighley—or Keithley as it is pronounced—is the chief centre of their manufacture, there being many "works" in the town, and hundreds of "hands" employed in them making these household requisites, not for local demands only, but for distant towns and cities and export purposes. After many trials and much experience the wood of the Sycamore is found the best of all for the machines in question and laundry work generally, and the demand for it is great and increasing. Keighley thus is favourably situated for its trade, the hills all around being clothed with Sycamores, and, as is clearly perceptible, young trees are being freely planted to maintain the supply.

That the demand for Sycamores is great the stock of them in one of Mr. Carter's nurseries affords conclusive proof. They are raised in thousands, as carefully attended to as if they were fruit trees, and as fast as they become large enough they are sold for planting on the Yorkshire hills and in exposed districts generally. As may be expected, where such numbers are raised distinct varieties are produced. Several of these are highly attractive by their clearly variegated and marbled foliage, and which is apparently not obtained at the expense of hardiness and vigour of the trees. The best of these are decidedly ornamental, and worthy of being planted anywhere where "pictorial" trees are required. A variety that originated here is remarkably clear in its marking, decidedly surpassing in this respect the one named Leopoldi, but both are highly effective.

Almost all other kinds of forest and plantation trees are also grown, including fine breadths of the most useful kinds of Firs, and every care is bestowed by planting thinly and keeping the ground clean to induce sturdy and hardy growth. Visiting Keighley after a long period of wet, weeds were in the ascendant generally, but not in this nursery, the proprietor somewhat naively remarking in reply to an observation, "Weeds! we cannot afford to grow them here;" and how he prevented them so well can only be explained on the supposition that there were no seeds. A golden rule in cultivation this—Grow no weed seeds, and there will be few weeds to exhaust the soil and increase the labour bill. The prevalence of weeds in this country during the last few years has had a ruinous effect on the land, and numbers of cultivators have found too late that they could "not afford" to grow them. The experienced owner of Keighley Nurseries appreciated the fact in time, turned his knowledge to account, and profited by it; hence the significance of the above remark.

Before proceeding further it must be said that Mr. Carter has two nurseries, the old one in the town and the newer and much larger, established to meet an expanding trade, a mile or more distant, pleasantly situated, and sheltered from the north by rising ground covered with Sycamores, a beautiful valley stretching to the right, and the town nestling between the hills in the foreground. The town nursery contains the glass structures, the most modern of which is a capital house glazed without laps or putty, the glass being secured by studs and indiarubber packings. The roof is quite watertight, and the mode of glazing gives great satisfaction. One long pit was heated in a manner that some people think not practicable, but judging by the excellent article on heating on page 434, last volume, Mr. D. Thomson is not one of them. The flow pipe in the case under notice, instead of rising gradually from the boiler to the far end of the pit—some 60 feet, is the highest at the end nearest the boiler, and is conducted with a perceptible descent the entire length, and thence back to the bottom of the boiler. The circulation was smooth, regular, and satisfactory.

As in most country nurseries, there was a little of almost everything here, both under glass and outside, to meet local demands, and those plants and shrubs are chiefly provided that thrive best in this cold and exposed district. In this nursery shelter is afforded by high Thorn hedges, referred to now as they were undergoing a shearing process, in which Ridgway's hedge-clipper proved its striking superiority over the old time-honoured shears. This implement Mr. Carter regards as one of the most valuable additions to garden requisites of recent years; certainly the hedges were being trimmed with great celerity, and at one-fourth the cost of the old method of clipping them. Those who have a great extent of hedges to keep in order in the summer may well make a note of this experience of a man who is far too practical to be deceived by a novelty that is not of substantial worth.

The newer and much larger nursery near the pleasantly situated residence of the owner is devoted almost exclusively to forest trees, hardy shrubs, Conifers, dwarf Roses, and such fruits that are found to flourish best in the district. Of flowers there were few—just sufficient to margin the attractive borders of choice Coniferæ that flank the principal walk. Standard Roses are scarcely represented, the winter being too severe for them. All the best and most hardy Hybrid Perpetuals are grown, together with some favourite old garden Roses that are not often seen at exhibitions—notably the pretty miniature Rose de Meaux, that produces its buds and flowers in great clusters, and the crimson Burgundy Rose also with small flowers. These have been grown in the Keighley Nurseries for upwards of sixty years. They are most valuable for affording cut flowers, and admirably adapted for flower borders and shrubberies.

Amongst forest trees, besides the above-mentioned Sycamores, Elms and Beeches were noticeable by their health and variety, Limes by their excellence, and Thorns by the strength and numbers in the form of Quick; while the ornamental kinds, such as Paul's double variety and others, were included. Golden Elders imparted brightness; this is a fine variety for distant effect, that will grow almost anywhere, and assume its golden hue if cut down annually; the pyramidal form, too, was turned to the best account—namely, for hedges, that seldom or never need clipping. Spruce and Scotch Firs are evidently a speciality, the true native form of the latter only being provided, as it has been found much superior to trees raised from foreign seeds.

Evergreens, especially hardy kinds, and they must be hardy to endure the winters here, are admirably represented. Of Laurels the variety rotundifolia is the finest as well as the hardiest, the common form being comparatively useless. The hardiest Privet is Ligustrum ovalifolium, which is almost or quite evergreen, and very ornamental. The collection of Rhododendrons is choice; but one in much favour in the district because of its compact growth and extreme hardiness is R. caucasicum album. It is one of the best evergreens that can be planted towards the front of shrubbery borders in cold districts, and is largely planted in the gardens of the neighbouring gentry.

There appears to have been some inquiries lately for Blackberries or Brambles. Both the Lawton and Parsley-leaved are included in the Keighley collection, and useful they are for covering trellises and hiding unsightly walls, as well as for affording fine clusters of fruit for preserving. Of course Carter's Prolific Raspberry is here, and of course it is true, which is more than can be said for all that are sold under that name. If nothing more had been done at Keighley than raising this valuable variety the nursery would be worthy of notice. There is very little doubt that it is the best established Raspberry in cultivation, and will hand down its raiser's name to posterity. The best evidence of the value of Carter's Prolific is afforded by the Kentish fruit-growers, who plant it by the acre and gather fruit of it by the ton daily in the season. It is sturdy, hardy, and productive, yielding large red fruit of the best quality. This is not Mr. Carter's estimate, as he said little about it, but is founded on the results of a trial of all the leading varieties except the new Baumforth's Seedling. If this equals the variety under notice it will not disappoint, while, if it surpasses it, it will be grown by future generations. I have seen fruit of the new variety exhibited, and it was fine. Cultivators might well try a few canes, but those who desire to make a plantation of a variety of well-proved merit cannot err by planting Carter's Prolific.

One word more. In the small lawn near Mr. Carter's residence not a Daisy nor weed of any kind was to be seen—nothing but fine fresh green grass that no one could fail to admire. This was the result, so the owner stated, of using Watson's lawn sand, but when and in what quantity it was applied I neglected to ascertain; perhaps Mr. Carter will supply the information, as this sand has not answered so well everywhere, and his experience might be useful to some readers who have weedy lawns.—A TRAVELLER.

VINE CULTURE.

AS there seems to be a desire that I should give more details of my mode of Vine management, and as the discussion lately carried on in your pages has degenerated somewhat into side issues, I purpose for the time giving up the argumentative style, because there is much I should like to say which would make my articles too long for this style of writing, and which I hope, from what I have heard during the time the subject has been debated, will not be uninteresting to some of your readers. I believe much of the treatment and many of the ideas I shall attempt to describe are original and of course not always faultless, for when one dares to be original he has very little to guide him but his own common sense, and as that cannot always be depended on to take him in the right direction, many unlooked-for things are sure to happen. None of these, however, is lost to the observant mind, be they failures or successes, and in the end success is certain to come to him who deserves it.

If, during the progress of the late discussion, I have misunderstood or misrepresented your able correspondent who has taken the opposite side to me, it was not because I had any intention of doing so—as he very charitably observes in his last communication—and I have to thank him for preserving good temper under difficulties, and to say that what will appear in future issues is not intended for men of his stamp—they do not need it; but at the same time I shall welcome friendly criticism from him or any other of your more advanced professional writers, for our object is precisely the same, though we are sure to differ a little about the best way of attaining it.

I shall begin at the beginning as if nothing had been said, and attempt to give a history of some Vines at Longleat, with suggestions as to Vine-growing in general.—WM. TAYLOR.

TREES AND SHRUBS FOR TOWNS.

NOTHING but praise, I think, can be ascribed to "WILTSHIRE RECTOR" for the tone of his address on the first page of the present volume of the Journal. His desire for the welfare of all is admittedly sincere, and his hope that gardening will spread through towns, and will be represented not only in its useful but ornamental phases in the suburban plots of artisans, will be shared by all. But as a suburbanist I must take exception to the stale sentiment of excluding foreign trees and shrubs from British gardens. "Have done with Cedars and Conifers and Laurels ONLY," exclaims the "RECTOR" in a brief yet redundant sentence, the meaning, however, of which is well understood. Is such advice necessary? Are exotics "only" planted in British gardens? Let us take as typical gardens those belonging to the clergy, situated near to large cities and towns as well as in lonely country districts. These gardens represent the mean between the two extremes of grand aristocratic gardens on the one hand and cottagers' plots on the other—therefore, I submit, are fair examples. There are, perhaps, twenty thousand of them, and it is a reasonable question to ask the good "RECTOR" how many of those contain "Cedars and Conifers and Laurels ONLY?" Can he name a thousand? No. A hundred? No. As it is certain he cannot even name so many, I will ask if he can name a dozen typical gardens (belonging to the clergy) that are planted with exotic trees and shrubs ONLY? If he cannot do this, then the "idea" that he "met" was, very unlike his own ideas, empty.

Since reading the article in question I have traversed the principal suburbs of London and visited the metropolitan parks. At a safe estimate I have glanced over two thousand gardens, and I have been astonished to find the vast number of native trees and shrubs that are established. In not a few gardens they are far too numerous, because unsuitable to the positions—Limes, cramped and mop-headed, Sycamores rendering the soil for yards around them barren, Elms made gaunt and unsightly, first by the wind, then the "pruner," who, in the interests of safety, has converted them into ugly stumps. Thorns, most beautiful, are quite numerous, so are Laburnums and Lilacs. Crabs are few, but single and double-flowering Cherries are plentiful; so are Almonds, but they suffered during the past few winters to about the same

extent that Oaks did. Rhododendrons, hardy and most beautiful of evergreens, are plentiful in some gardens, but not sufficiently represented in the majority; and as to the "endless repetition of Monkey Puzzlers and Laurels," they are not a tenth, not a twentieth part, so numerous as English trees and shrubs are, neither in large nor small gardens, nor in the parks.

By far the most attractive enclosures are those that have a good assortment of evergreens and Conifers associated with native deciduous trees and shrubs; but there are thousands of small frontages, neat, enjoyable, and evidently cherished, which it would be impossible to furnish attractively with English trees ONLY. Take from those miniature plots the bright and refreshing Aucubas that endure smoke so well, the green and variegated Euonymuses, the rich in winter and gorgeous in summer Rhododendrons; remove from the small lawns, narrow borders, and window sills the feathery Retinosporas, and the enclosures will cease to be gardens, and more will be done to discourage a taste for gardening among the masses than any other step that could be taken. Substituting "wild Broom" may look well "on paper;" but let "WILTSHIRE RECTOR" go to the waysides where it grows and produces so freely its charming golden sprays, dig up and take home a hundred plants and insert them in his garden, then tell us next year how many of them are thriving. If 90, 80, or even 50 per cent. of them are established and flourishing the details of his experience will be of great practical value.

The truth is, and many failures emphasise its force, that if trees are to be established in towns those kinds that have proved their adaptability for the purpose must be employed, let them come from where they may. Those which grow freely and healthfully, endure smoke, give shade, and are not dangerous by falling branches must be selected. In London this is the Plane, and he who would plant avenues of the common Elm in the streets of London because it is a British tree, and exclude the Plane because it is an exotic, would be far too dangerous an individual to be entrusted with public improvements. Your worthy correspondent will be glad to know that the Thorn is an excellent town and suburban tree; so is the Laburnum, which brightens as no other tree can brighten suburban homes. Would anyone exclude this tree (which Cowper so expressively referred to as being "rich in streaming gold") from British gardens because it is a native of Switzerland?—SOUTH KENSINGTON.



KITCHEN GARDEN.

As ground becomes vacant that has been occupied with Coleworts, early Savoys, Brussels Sprouts, or Celery, it should be dug or trenched as is necessary not less than two spits deep if the depth of soil will admit of its being done, also applying manure. The best means of producing vegetables of the finest quality and in quantity is deep cultivation in combination with good surface dressings of manure. When advantage has been taken in favourable weather to prepare ground for spring planting or sowing, time may be profitably employed in collecting and burning any refuse prunings; the ashes, which kept dry are valuable as a dusting for seedling Brassicas, and an important dressing for all kitchen garden crops, especially root crops and fruit borders, a peck per rod being a sufficient dressing.

Potatoes in pits, or placed in quantities together, will require attention in spreading as thinly as space will permit. This applies especially to all early varieties, which, owing to the mildness of the season, are growing fast; and the removal of the first sprouts should, if possible, be avoided with all intended for planting, especially the early kidney varieties, for these, if once disbudded, seldom sprout again freely. Onions in strings or reeves, if commencing growth from being in a close room or cellar, may be removed and hung in an open and airy shed; one open to the north is most advisable to keep them sound as long as possible.

Forcing Department.—Fermenting beds where Asparagus roots have become exhausted will, if turned and supplied with new material, soon afford a suitable heat for fresh roots to maintain the succession. This, when properly managed, is the best of forced vegetables, but

its quality is often deteriorated through insufficient ventilation. Pits with moveable lights are most suitable, and the latter should always be kept off whenever the outside temperature is 50° , and to obtain good heads from December to March fermenting beds at from 70° to 80° are most suitable, with the means to afford artificial heat when needed to maintain a suitable top heat and for ventilating purposes. Introduce more roots of Seakale and Rhubarb to the Mushroom house or where it is forced; and to secure a full supply of the former in the spring cover the stools with pots and those with long litter, so as to exclude light. If wanted early cover with fermenting materials, so as to raise a mild heat around the pots. Seakale forced in this way will at this season be more tender than that in a Mushroom house, whilst that allowed to come in naturally will be very much the finest. Failing pots any loose material will answer for blanching, such as cocoa refuse, placing it on about 9 inches thick, ashes and sawdust with spent tan being also good. As soon as Radishes appear, and until rough leaves are formed, the frames must be well ventilated, for if the Radishes become drawn they are of no use. Early Carrots will need similar attention, and slugs must be destroyed, for they are very destructive to young Carrots.

Potatoes in pits and frames must be well ventilated in favourable weather, earthed and attended to in supplying tepid water when necessary early on fine days. Continue to make beds and plant Potatoes in proportion to the probable demand, also preparing beds for Radishes and Carrots. If there is likely to be a scarcity of Lettuces in the spring a bed must now be prepared, about 2 feet in height, of three parts leaves to one of stable litter; place on it a two-light frame, and when the bed is warm level the surface, and put in 4 to 6 inches depth of rich light soil. When this is warmed through sow the seed in drills 6 inches apart, ventilating freely as soon as the plants appear, and thin them to 3 inches apart, ultimately lifting every alternate plant when the weather is sufficiently advanced in spring, and plant on a warm border, and they will afford a succession to those from the frame. Early Paris Market is a very early-hearting variety, and best for this purpose. If Cauliflower seed was not sown in autumn in frames or under handlights, and yet an early supply of heads is desired, a sowing may now be made in a frame over a hotbed prepared as for the Lettuce, pricking the plants off when sufficiently advanced in cold frames, or, what is better, pot them singly in 3-inch pots and grow them in cold frames until April, when they may be planted-out in a sheltered position. Such varieties as Veitch's Early Forcing being planted 12 to 15 inches distance apart, at which they afford heads large enough for table, and quite as early as ordinary kinds, such as Early London or Walcheren sown in August and wintered under handlights. Other kinds may be treated similarly for succession to Early Forcing. Mint may now be taken up and placed in pots or boxes in a warm house, also roots of Tarragon, making sowings of Mustard and Cress once or twice a week.

MUSHROOM HOUSE.

Early beds which have produced abundantly are now becoming exhausted, and may, if the drainage is good and the materials not too much decomposed, be renewed by giving a good soaking with water at a temperature of 100° , and to which has been added a quart of salt to every twelve gallons of water and well stirred, and if the temperature of the house can be kept at 75° it will aid the beds. If the materials forming the beds are much decomposed they should be cleared out and fresh employed. Beds in bearing may be sprinkled frequently with tepid water, being careful not to make it too wet. Beds beginning to bear will need a very careful watering, especially those formed of moist close material at the commencement, and not near flues or hot-water pipes; but beds formed of light somewhat dry materials, or are immediately over hot-water pipes, and are in no danger of becoming too wet, will require watering frequently and freely. When in bearing ventilation is required daily for an hour or two.

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the house started at the beginning of December are now in full blossom and will need artificial impregnation, which must be attended to daily so as to make sure of a good set, nothing contributing more to this than a well-

ventilated but not dry atmosphere. In fine weather the borders should be sprinkled in the morning and early afternoon, having the ventilators open constantly to prevent a close stagnant atmosphere. The temperature must be continued at 50° to 55° at night, and 60° to 65° in the daytime from sun heat. Disbudding will need attention, but it must be done very carefully, removing a few shoots daily, and commencing early. A shoot will need to be reserved of the current year's bearing wood for next season's fruiting, displacing that of the present year after the fruit is gathered, and a shoot must be retained on a level with or above the fruit, which may be stopped at the first two or three leaves. Proper provision must in disbudding be made for extension and filling vacant space, the extension being 15 to 18 inches apart, and the shoots originated for bearing a similar distance upon the upper side of the branches.

The trees started at the beginning of the month have flowers opening and syringing must be discontinued, but the borders will need damping morning and afternoon, having a little ventilation at the top of the house constantly. The temperature will require to be raised to 50° at night and 55° by day, ventilating freely at and above that temperature. The trees usually started at the beginning of next month have the buds swelling fast, and will need free ventilation so as to retard the flowering, instead of, as usual, closing the house about this time preparatory to the application of fire heat early in February. The trees this season will be in flower by that time if the present weather continue, and must not then be retarded, but assisted with fire heat if necessary to secure a minimum temperature of 50° by day and 40° to 45° at night. This will be necessary to secure a good set, and whatever is considered disadvantageous in having them too forward may be counteracted by allowing more time during the swelling and stoning periods. Complete the pruning and dressing of trees in late houses, ventilating freely to retard the flowering, and see that there is no deficiency of moisture in borders.

FLOWER GARDEN.

Beds or borders not occupied with shrubs or spring-flowering plants ought to be trenched or dug at once; and to those intended for such plants as Calceolarias, Pansies, Violas, Verbenas, Alternantheras, Iresines, Coleuses, Cannas, Wigandias, and all subtropical plants add a liberal dressing of manure, and trench as deeply as the soil permits. Beds intended for Pelargoniums, Tropæolums, and Lobelias will be better without the manure unless the soil is very poor, but will be the better for being deeply dug or trenched, whilst ground intended for Hollyhocks and Dahlias can hardly be too liberally manured or too deeply stirred. All arrangements for next summer's display should be completed as soon as possible. Stock plants of Verbenas, Petunias, and Ageratums should be placed in heat so as to afford cuttings early. Alternantheras, Coleuses, and Iresines must have a mean temperature of 65° , and they will then afford a plentiful supply of cuttings. The Alternantheras strike freely in boxes in equal parts of loam, peat, and leaf soil, the boxes being about 5 inches deep, and filled to within an inch of the rim with the compost, a piece of glass being placed over the cuttings, and the boxes placed over the hot-water pipes in vineries. In order to secure good plants at planting time, seeds of Cannas, Acacia lophantha, Ricinus, Solanums, Wigandias, Nicotianas, Chamæpeuce diacantha, Centaureas, Ferdinandias, and Melianthus must be sown in heat, and the plants produced grown near the glass. Stock roots of Dahlias, and Salvia patens can be placed in heat now, and cuttings taken when a couple of inches long, inserting them in thumb pots, they will strike freely in a bottom heat of 75° .

PLANT HOUSES.

Orchids.—Many of the Vandas as well as Saccolabium retusum are now showing flowers, and cockroaches, being very fond of the spikes, poison should be employed for their destruction: employ Potatoes cut in halves and hollowed-out to trap woodlice. Phalænopses on blocks require frequent syringing; those growing in baskets must be examined every morning, and have the moss kept damp. Water should be poured on the floor and benches of the East Indian house every morning, but guard against superabundant moisture. Plants of Calanthe vestita and C. Veitchii that have ceased flowering should be kept dry until they again commence growth, and many of the plants that have been at rest some time will soon start again

and should be placed at the warmest part of the house previous to potting. Dendrobiums showing flowers must have moderate moisture at the roots, and require an increase of heat to encourage the flowers. Do not excite any at rest, but the plants must not be allowed to shrivel, similar remarks applying to Cattleyas and most Mexican Orchids. Odontoglossums and Oncidiums are coming into flower and must be well attended to with water, also those that are growing. Cypripediums require plentiful supplies of water. The terrestrial Calanthes need plenty of water as often as the soil becomes dry, weak liquid manure assisting the plants to produce strong flower-spikes. As at this season of the year very few plants are in active growth, advantage should be taken to give a thorough cleaning. Nicotine soap at a strength of 6 ozs. to the gallon of water, at a temperature of 90° to 100°, applied with a sponge or brush, is a capital remedy for either white or brown scale. Keep the glass clean, as the clearer the glass the brighter will be the flowers. The temperature for the East India house must be 60° by night and 70° by day; the Mexican house 55° at night and 60° by day; and the Odontoglossum house 48° by night and 55° by day.

Greenhouse.—All softwooded plants need a position near the glass, especially such as Cyclamens, Cinerarias, Calceolarias, Pelargoniums, and Primulas, and where hardwooded plants must be grown in the same house they should be placed at one end where they can be kept cool by free ventilation. This will not afford so pleasing an effect, but the results in growth will be more satisfactory. Pelargoniums that were placed in small pots in autumn must without further delay be transferred to a larger size. Unless the plants are large, pots 6 or 7 inches in diameter are the most generally useful, and for any purpose those 8 inches in diameter are quite large enough. Good loam with a fifth of decayed manure is a suitable compost. Pot firmly and keep the soil drier than for most other softwooded plants. Some of the varieties flower freely in a temperature of 50°, and for this purpose Duchess of Bedford and Bridal Bouquet are useful for bouquets. It is essential that they be well established and not in very large pots.

Fuchsias that are stowed away under plant stages and similar places must not be allowed to become too dry, or they will not start freely when needed. Liliums in similar positions are liable to be neglected in watering, and that is fatal to the roots, which are always more or less active and need the soil kept moist. Any that were not potted as soon as the stems died should now have the whole of the soil above the bulbs removed so far as can be done without injuring the roots, supplying good fresh loam to which has been added a small proportion of well-decomposed manure, giving just sufficient water to keep the soil moist. Pot any late plants of Cinerarias, also Calceolarias requiring a shift, affording liquid manure to Cinerarias producing their flowers, and if the plants are in small pots it may be given every time the plants are watered. Cyclamens are amongst the most useful of winter-flowering plants, but to grow them well an intermediate temperature is most suitable, keeping them near the glass, supplying liquid manure, and keeping them free from aphides. The flowers in a temperature above that of an ordinary greenhouse are larger and more freely produced. Kalosanthus are very useful and are easy to grow, not being subject to insect attacks except by aphides, which are easily destroyed by fumigation. To insure good blooms the plants must have a light position and sufficient water at the roots to keep them steadily growing. Primulas do not always have the trusses of bloom raised enough above the foliage to render them effective, which is due to their being kept in too low a temperature, 50° being necessary.



BEES IN TROUBLE.

My bees have been made acquainted with the kind and generous advice given in last week's Journal by Mr. Cheshire on their behalf, inasmuch as the barleysugar recommended has been supplied and freely accepted, comfort and contentment being thereby secured for the present, as evidenced by the hum of thankfulness.

Though their thanks have been tendered to me privately in their own language, I have no doubt that, could they speak ours, Mr. Cheshire would have received a gracious message from each sovereign, thanking him for being the means of saving the lives of their illustrious selves and subjects, and wishing to confer the highest honours possible in the power of beedom. As their representative allow me to thank him, and to say that all his instructions for later on in the interests of their majesties and their subjects will be carefully and gratefully followed, as will also the valuable information on the subject given from time to time in "our Journal."—E. T.

QUEEN CAGES FOR POST.

I SHALL use a sponge filled with honey instead of sugar candy. Experimenting with candy last year cost me the loss of many queens. I do not lose one queen in fifty with sponge and honey. Now I will explain about the cage. It is made five-eighths of an inch wide, so as to give more space of sponge to the bees, thus making the food hold out longer. In shipping, the tin might press in, but as I make them the tin is on solid against the wood on all sides, and cannot press in.

In shipping two, four, six, or more queens at one time, I will place the wire face to face, but reversing the sponges, so that the bees in one cage can feed from the sponge in the other. In shipping three queens, I will make tin an inch shorter, and cover

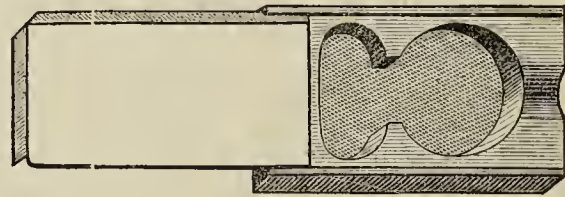


Fig. 12.

the sponge with wire cloth, and then the bees in all three cages can draw food from their neighbours. Bees in such cages will live from two to three weeks. I think the pressure of the wire will hold the sponge in place; if not, drive a sharp nail through the side into it. Half a dozen bees to a cage will be all the company a queen will want.

I put bees in the cage, keep up the corner of the wire not nailed down, and raise it with the index finger. The spring of the wire will keep it down. I have done this all my days.

I can bore the holes in them with power, and can do it much quicker than I can nail them up. Then, again, the cages now used are much stronger and neater. I have put a few bees in them, and covered the tin with paper to keep the bees away from the cold tin.—HENRY ALLEY (in the *American Bee Journal*).

OLD COMB HONEY CANDIED.

INQUIRIES are often made as to what to do with old comb honey that has granulated. Mrs. L. Harrison, in the *Prairie Farmer*, some time ago gave the following plan:—

"When the honey is marketed all unsightly and unfilled combs are removed, and we find much of it granulated, so that extracting is out of the question. A bee-keeper once told the writer that she put all such comb honey into a pan and melted them in the oven, and that when it was cooled the wax would be in a solid cake on the surface, when it could be removed and the clear honey would be underneath. We tried this plan, but the honey was injured by being heated too much. We then tried this way, and succeeded much better: The honey was mashed up in a pan, and set over a kettle of boiling water and stirred frequently. Before the honey was very hot the wax had risen to the surface, and, being set out in the cold, quickly congealed, so that the warm honey could be poured from under it through a coffee strainer into another vessel, leaving the wax in the pan. After the honey was melted the wax was all melted up together, and considerable honey of inferior quality was under it, which can be kept separate, and be used for cooking, making gingerbread, &c. The rinsings of vessels used in manipulating the honey will make excellent vinegar. The wax can be melted in a pan over boiling water, and should be poured, when melted, through a hot coffee strainer, and when cool will be of a light straw colour."

BRITISH BEE-KEEPERS' ASSOCIATION.—The annual general meeting of the members of this Association will be held on Wednesday, February 15th, under the presidency of the Baroness Burdett-Coutts. Members desirous of bringing forward any motion for discussion at this meeting are requested to give notice of the same to the Assistant

Secretary, Mr. J. Huckle, King's Langley, Herts, on or before Wednesday, February 1st.

TRADE CATALOGUES RECEIVED.

John Cattell, Westerham, Kent.—*Catalogue of Flower and Vegetable Seeds.*

F. C. Heinemann, Erfurt.—*Catalogue of Flower and Vegetable Seeds.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds.*

Charles Turner, Slough.—*Catalogue of Flower and Vegetable Seeds.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Vegetable and Flower Seeds.*

Walter Ford Pamber, Basingstoke.—*Catalogue of Flower and Vegetable Seeds.*

Stephen Brown, Weston-super-Mare, Somersetshire.—*Catalogue of Flower and Vegetable Seeds.*

William Bull, King's Road, Chelsea.—*Catalogue of Flower and Vegetable Seeds.*

George Cooling & Son, Bath.—*Catalogue of Flower and Vegetable Seeds.*

W. P. Laird & Sinclair, Dundee.—*Catalogue of Flower and Vegetable Seeds.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (E. B.).—Probably the book you require is the "Pocket Guide to British Ferns," published by Mr. David Bogue, 3, St. Martin's Place, Trafalgar Square, London.

Heaviest Gooseberry (K. L., Cheshire).—The heaviest fruit of which we have any record is of London, a red variety, which weighed 37 dwts. 7 grs. in 1850. If any of our readers know of heavier fruits we will readily record them.

Indian Hawthorn (J. Melton).—The shrub of which the above is the popular name is *Raphiolepis ovata*. It is a native of China and is hardy, at least in the southern counties. It is propagated by cuttings selected when the wood is half ripe, and inserted in sandy soil under a handlight in a shaded place.

Primulas (S. C.).—We received the flowers, and all of them are good, some very fine; but as they did not arrive in the order in which they were placed in the box, but were a confused mixture, we are unable to refer to them individually. Without doubt the plants producing such flowers have been well grown, and we shall be glad to publish the details of your method of culture.

Ages of Trees (X.).—We are unable to answer your question explicitly, as both the trees, being exotics, are greatly influenced by the positions and districts in which they are grown, and by the weather. We can only say that we know specimens of Portugal Laurels upwards of a century old; but we do not know of any Almonds that have approached that age in this country.

Orchard House Notes (J. E., A.).—We think perhaps the article you require is on page 261 of No. 601, vol. xxiii., new series, the issue of October 3rd, 1872. If you do not possess this number the publisher can perhaps send it to you in return for 3d. in postage stamps.

Mushrooms Failing (X. Y. Z.).—If you will inform us under what conditions the Mushrooms were attempted to be grown, such as the composition of the beds, temperature maintained, and the management generally, we will endeavour to point out the cause of failure. You afford us no data whatever to enable us to arrive at a decision on the matter.

Winter Cucumbers (Hortus).—You cannot do better than follow the instructions that are given from time to time in our "Work for the Week," and you will find a paragraph on page 38, last week, in which the routine is clearly given. A sufficiently moist atmosphere can be maintained without syringing at this period of the year. There is no occasion to apply lime water in the condition you name. When used clear it is not injurious, and answers the purpose intended. Your last supposition in reference to worms is the right one.

Cutting Arbor Vitæ (C. M. M., Croydon).—You may cut them back at any time if you do not object to their naked appearance afterwards for several months. If you defer pruning them until May, fresh growth will commence at once—that is, if it will commence at all, this depending on the age and condition of the specimens. The Apple and Cherry trees may be cut down now for the purpose required.

Seedling Cyclamen (R. W. B.).—Examples similar to those sent are not infrequent in collections where large numbers of plants are raised from seed, and we have seen similar flowers in the greenhouses of amateurs. We have also seen far better examples of double flowers than those before us, in which the inner petals, transformed from stamens, are much malformed, and we have had

them smooth and well developed. Your variety is curious and in a certain degree attractive, but possesses no commercial value.

Mealy Bug on Vines (S. B.).—When Vines are much infested with mealy bug in the summer there is nothing that can be applied to the rods in the winter that will be effectual in extirpating the pest. You may destroy the insects on the Vines, but there may be thousands in other parts of the house—in fissures in wood, in strands of matting, in the soil of flower pots and borders, and in other places that you may consider very unlikely haunts, and these will increase rapidly in the spring. It follows, then, that every portion of a house needs cleaning as carefully as the Vines do. If you dissolve 3 ozs. of Gishurst compound in a gallon of water, and add thereto a small wineglassful of paraffin, and apply this to the Vines at a temperature of 150° or more—indeed as hot as the hand can be borne in it for a moment, you may, if the work is thoroughly done, remove every insect from the bark. When you have done this every portion of the woodwork should be washed with equal care, every insect destroyed that may be on the plants, the surface soil removed from the pots and borders, and fresh compost added. Even if you do all this, and the work is carefully and well carried out, some insects will almost certainly appear in spring, and these must be sedulously watched for and promptly destroyed. It is only by constant watchfulness and unflagging perseverance that mealy bug can be banished from houses in which the insects are firmly established; and the man who accomplishes it deserves as much credit as those who grow plants and fruits so well as to obtain prizes for them at the best exhibitions.

Plants for Greenhouse (A. H.).—Your statement that you can insure a mean temperature of 55° is no guide to us for the purpose in question. If you mean a minimum temperature of 55°, and the atmosphere is healthy, you can grow all kinds of intermediate-house plants and many stove plants. We venture to say, however, that you cannot maintain any such temperature in a house 18 feet square with a paraffin stove. If you can keep the night temperature between 40° and 45°, and the atmosphere sweet and healthy—a most important condition, you can grow all kinds of greenhouse plants—Azaleas, Camellias, Pelargoniums, Fuchsias, Calceolarias, Cyclamens, Heaths, and other hardwooded plants, also various bulbs. Of these and many other plants you will find sound information relative to propagation and culture in our greenhouse manual, post free 10d., and "Florists' Flowers for the Many," post free, price 4d. If you need more precise information than these works afford we will gladly impart it at any time through our columns.

Pot Truck for Orchard House Trees (J. E.).—We find the following relative to this subject which was communicated to us several years ago by Mr. J. Gamett, The Grauge, Bolton:—"It is well known that the flavour of Peaches and Nectarines grown in pots is much improved if the trees are carried out into the open air a week or ten days before the fruit is ripe; but it is rather difficult to move trees in 18-inch pots with branches down to the bottom, extending 2 feet on each side, without either injuring the branches or shaking off some of the fruit. To overcome this difficulty I have had a machine made, of which I send you a drawing. It answers the purpose admirably. By means of slots in the axle, and also in the upright bearers which carry the clips, I adjust the latter to about the proper height and width of pots to be removed, and when these are properly set, pots measuring from 11 to 18 inches can be removed without altering anything except the two handles, which lie on the cross-bar of the truck. When I wish to remove a pot I adjust these handles, so that the points of the clips are a little wider than the bottom diameter of the pot; next elevate the handles of the truck, and slip the clips round the bottom of the pot; then, by depressing the handles again, the clips take hold of the pot under the rim and lift it clean from the ground. You will observe, also, that when the handles of the truck are the proper height for wheeling, the

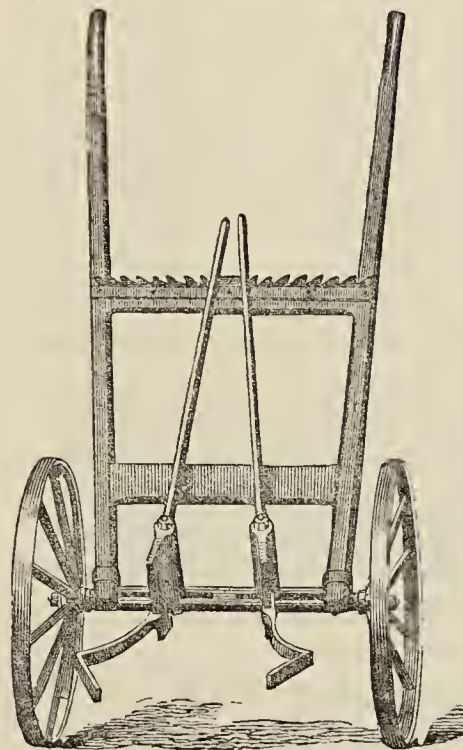


Fig. 13.

clips point upwards at an angle of about 45°, throwing the tree in a slanting position to enable one to get tall trees through doorways of an ordinary height." We are inclined to think that this plan is preferable to the method you have submitted, but your sketch is scarcely sufficient to enable us to give a definite opinion on the point. If you have your pot truck at work you will be better able to estimate the relative merits of the two appliances in question, and we shall be glad to have your opinion on the subject.

Cinerarias Dying (G. R.).—We have examined your plant carefully, and we do not think the small "mites," which were introduced with the manure, have caused the death of the plants, but in your endeavours to kill the mites it is not unlikely that you have injured the roots, many of them being in a state of partial decay, and all of them unhealthy. The plants have been grown too luxuriantly in their early stages by the use of rich light soil. The soil employed at the final potting was in our opinion decidedly too light; for a time the plants would grow in it vigorously—become, in fact, plethoric, but when the strain of flowering occurred the compost did not possess the sustaining power requisite for perfecting the growth. We are further of opinion that the plants were too much rootbound before they were transferred from small pots, as the roots near the stem are much curled, so much so, in fact, as to have caused the water to lodge there, this part being excessively, even dangerously, wet. We have known many plants die from the causes indicated—namely, permitting them to first become rootbound and using compost altogether too light at the final potting, and in our experience similar results seldom happen when a different method of culture is adopted and a firmer compost employed. Those skilled cultivators who produce Cinerarias in thousands for Covent Garden Market would not permit anyone to pot their plants in such soil as you have used, even if he would

provide the material without cost and do the work for nothing. Such soil is only suitable for plants in their early stages, afterwards they need more substantial fare, and if this is not provided they collapse somewhat suddenly, to the great disappointment of the cultivator.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (J. J. S.).—A beautiful specimen of Dumelow's Seedling. (Ramalho).—We are very sorry we cannot name either of the Apples you have sent. Neither of them is of any merit.

Names of Plants (R. L., Cheshire).—1, Not recognisable, no spores on frond; 2, *Begonia argyrostigma*; 3, quite crushed; 4, *Sparmannia africana*. (G. H. H.).—1, *Bambusa Fortunei*; 2 and 3, varieties of *Begonia purpurascens*; 4, *Begonia imperialis*; 5, *Sansevieria zeylanica*; 6, insufficient for identification.

COVENT GARDEN MARKET.—JANUARY 18.

OUR market remains the same, with an improved demand for best Apples.

FRUIT.											
		s. d.		s. d.				s. d.		s. d.	
Apples.....	½ sieve	1	0	4	6	Lemons.....	½ case	12	0	16	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	Nectarines....	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	½ 100	4	0	6	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	0	0	0	0
„ Red.....	½ sieve	0	0	0	0	Pears, kitchen..	dozen	1	0	1	6
Figs.....	dozen	0	0	0	0	„ dessert.....	dozen	1	0	4	0
Filberts.....	½ lb.	0	0	0	0	Pine Apples....	½ lb.	1	6	2	0
Cobs.....	½ 100 lb.	75	0	0	0	Strawberries...	per lb.	0	0	0	0
Gooseberries....	½ sieve	0	0	0	0	Walnuts.....	bushel	7	0	8	0
Grapes.....	½ lb.	1	0	5	0						

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms.....	punnet	1	0	1	6
Asparagns.....	bundle	0	0	0	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	½ 100	1	0	0	0	Onions.....	bushel	3	6	0	0
Beet, Red.....	dozen	1	0	2	0	„ pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	2	0	0	0	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	2	6	3	0
Carrots.....	bunch	0	4	0	6	„ Kidney.....	bushel	3	0	3	6
Capstems.....	½ 100	1	6	2	0	Radishes....	doz. bunches	1	0	0	0
Cauliflowers.....	dozen	1	0	3	6	Rhubarb.....	bundle	0	4	0	6
Celery.....	bundle	1	6	2	0	Salsafy.....	bundle	1	0	0	0
Coleworts.....	doz. bunches	2	0	4	0	Scorzoneria.....	bundle	1	6	0	0
Cucumbers.....	each	0	6	0	8	Seakale.....	basket	2	0	2	3
Endive.....	dozen	1	0	2	0	Shallots.....	½ lb.	0	3	0	0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3	0	0	0
Garlic.....	½ lb.	0	6	0	0	Tomatoes.....	½ lb.	0	8	1	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	0



POULTRY AND PIGEON CHRONICLE.

MAKING FIRST-CLASS BUTTER.

(Continued from page 42.)

HAVING previously alluded to the Laval system of separating the cream from the buttermilk, it must be remembered that all the machinery was on a large scale and driven by steam power, therefore adapted only for large factories, like many on the Continent and in America. For instance, we have excellent butter from Holstein, from Denmark, and from various places in America. As, however, the exhibition of butter-making at Derby was only adapted for working upon an extensive scale, yet we commend the statement of the whole proceedings to the notice of the home farmer, as reported in the last volume of the Royal Society's Journal; that will show the English butter maker the powerful rivalry with which he has to contend in the open market in his own country.

We shall not pursue the factory working subject further, but proceed to notice what is not only necessary but obtainable in England, to enable the home farmer to manufacture butter by the most practical and improved means now available. We cannot, however, avoid observing that it has frequently occurred

to us as well as others that there can be no real necessity of importing large supplies of butter from distant lands when we have every facility for producing good butter at home with comparatively little trouble by the use of all the recent improvements in the art. The question will, therefore, very naturally be asked, How is it that so much butter is imported into England when we can make it cheaper and avoid the expense of importation? The reply is extremely simple, and it is this—Foreigners make better butter than we do, notwithstanding the natural advantages we possess of selling it fresh and obtaining a good price for it.

The last few sentences are the substance of a lecture by Dr. Voelcker delivered on opening a series of useful addresses on the "Principles of Butter-making" in the working dairy erected in the Royal Showyard at Derby. He continued, "Before speaking of the circumstances which spoil butter-making in this country, it is desirable that I should give you some explanation of the composition of milk. Milk, then, is a perfect food in a concentrated form, and contains everything necessary for the sustenance of young animals, especially as it contains all the elements necessary for bone-making. Cream consists of a certain proportion of water and fatty matters, and a small proportion of casein. It would, of course, be much better for the butter-maker if this latter element were absent, and if that were the case the principal part of the difficulties in the way of butter-making would be at once overcome, because it is due to the rapidity with which casein turns sour that butter obtains the rancid taste which we sometimes detect. If by any means we could separate the fatty matter from this casein or curd matter we should get excellent butter. It is this curd matter which causes all the difficulty, and it is on this account that I believe dairy farmers will never obtain the first quality of butter from whole milk, certainly not the same quality as that which is obtained from cream. The composition of cream varies greatly, and the same remark applies to the fatty matters of which it is constituted. This circumstance I attribute in a very large degree to the feeding of the cows. It has been said, with a good deal of truth, that by overmanuring pasture land we reduce the fine quality of the butter made from the milk of cows fed upon such pasture. My belief is that the finest quality of butter is produced from pasture which contains a great variety of herbs, some of which might even be ranked as weeds. The question is, Can ordinary pasture produce first-quality butter? and to that question I answer, Decidedly, if you take proper precautions to prevent the cream turning sour before it is churned. This sourness, let me repeat, is the great hindrance in the making high-class butter. Many persons deem this a small matter, and unconsciously allow the cream to get somewhat sour before making butter; but if you desire to produce good, sweet, keeping butter you must churn cream as sweet as possible.

"How are you to prevent cream getting sour? In the first place you must carefully look after all the people employed in and about the dairy, to see that they always have the importance of cleanliness before their eyes; then when the milk is drawn from the cow it ought to be cooled down directly to about 55°, so as to take what is called the animal heat from it. As to the question of shallow or deep pans for 'setting' for cream, I am an advocate for the use of deep ones. After being filled with milk these pans should be placed in a vessel containing water—ordinary pump water answers well—for twelve hours; or, if the milk is extra warm a little ice may be used, and this would result in a large proportion of cream rising. In order to prevent rancidity it is very important that the cream should be churned at once. In small dairies, however, this is impracticable, and in such cases every endeavour should be made to prevent the casein from changing. Do not be in too great a hurry and turn irregularly, because if you do failure will almost certainly result. Turn steadily at about forty-five or fifty revolutions per minute. As soon as the butter comes—and this you can tell by the noise—it is time to stop the churn and deal with the butter kernels. Strain off the buttermilk, put some cold water into the churn, and turn it again two or three times, this will have the effect of washing the butter. Perhaps the best way is to incorporate the smallest quantity of salt or salt water into the churn so as to distribute the salt evenly amongst the butter. I do not recommend too frequent washing, as this only results in the butter losing that fine natural flavour which it should possess. After each process of butter-making, the churn and other utensils should be cleansed with boiling-hot water and followed by cold water."

We have taken these copious extracts from Dr. Voelcker's lecture because it is so simple, and not only free from all chemical appliances, which the lecturer denounced entirely, but because the whole statement so entirely accords with the principles and process adopted in our dairy for many years, and which furnished

butter that was highly appreciated and always made the highest price in the market.

The next point of importance is, How are we to obtain the best butter in the winter and early spring months before we have grass feeding for the cows? We can, by using liquid manure on the Italian Rye grass, have it fit for feeding in some seasons by the first week in March; still there will be in any season a certain period when grass cannot be obtained for the cows so as to influence the quality of the butter in the usual way. Perhaps in some cases we may have sufficient grass for grazing in some of the best water meadows by letting the water off about the middle of February in some seasons, but this is quite an exception, and if it could be done the home farmer would only be justified in adopting such management under orders to obtain first quality of butter at whatever cost and difficulty. He must in the absence of special requirements fall back upon the best food obtainable at the time of year. In such cases we should recommend the Alderney cows entirely, and those which have only lately calved, about a week or ten days previously; we further consider that they should be fed upon hay and water only, but the hay should be the produce of the best grazing land, where the herbage is of sufficient quality and nature to give the hay the fine aroma which we often find when it is well made, and contains a large portion of the "Sweet Vernal" grass. This we believe will at the particular time of winter furnish the best butter that can be made, but in less quantity than by not feeding, and therefore not at the greatest profit to meet the trade, but only for the purpose of a supply to the establishment with which the home farmer may be connected. Still, as we have previously remarked, a very good article can be manufactured when the cows are fed upon hay, bran, or Wheat meal and Potatoes, especially from Jersey cows that have recently calved.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The labour for horses must now be anticipatory, and the home farmer should now begin to arrange for the labour on the land requisite for seeding early pulse crops, such as Beans, Peas, and summer Vetches. As soon as the land is dry enough to plough and the presser to follow, these crops may be put in. We recommend two ways in which it may be done, so that the work of ploughing and seeding may be done simultaneously. First, the seeding drill attached to the heel of the plough is well adapted for Beans, as the grain may be deposited at the bottom of the furrow as the work proceeds, covering it in effectually, and the land require no harrowing, especially if the land should be cold and heavy. The other way is to plough, the presser following, and a seed drill may be attached to the presser so that the seed may be deposited with the drill in the grooves formed by the presser. We have mentioned the press drill to various implement makers, some of them are making drills for the purpose to be attached to the frame of the presser, and this plan is commanding increased attention from the farmers. The drill attached to the plough depositing the seed in the furrow is as well adapted for Peas as for Beans, but the land should be ploughed more shallow with a lighter furrow, as the seed can then germinate more quickly than when a heavy furrow is turned. If, however, the land is dry sandy loam or of a gravelly nature the seed lines would come through a deeper furrow. Upon the whole we recommend the seeding and pressing combined in one operation, feeling assured that this system will meet the approval of most practical farmers, because it is so important in the early season like January or February when the weather is uncertain to have the work completed as the day's work proceeds. The advantage of burying the seed of pulse crops under furrow is, that it prevents the birds from damaging the young plants, because birds will not take the trouble or labour of digging deeply to obtain the grain.

Dung may still be drawn out on land intended for Mangolds, Beans, Peas, &c., and if the weather is dry, when the land is near towns the manure may be laid out as it is brought home; but we must again caution the home farmer as to buying town manure, for much of it is not worth the expense of delivery and laying out as compared with artificial manures. Dr. Voelcker analysed some for a farmer whom we recommended to have it done in December, 1877, and after giving the exact contents he states "it contains a large proportion of coal ashes, and is scarcely worth as much as fresh farmyard manure, and 5s. per ton delivered is quite as much as I would recommend to be given for it. If, however, good stable dung can be bought at 6s. 6d. to 7s. 6d. per ton delivered on the farm I would prefer it to the other at 5s. 6d." This opinion is important, as it proves that it cannot in the majority of instances be obtained at that price with carriage of delivery added.

Hand Labour.—In those districts where the fences consist of large and wide banks with ditches and borders they may be turned to account if the growth of wood thereon is of various kinds, but not being Whitethorns. If the wood is cut quite close to the bank so that the rough hedge grass and young shoots of underwood can be cut closely with the scythe or flagging hook, capital fodder for young cattle or dairy cows may be cut twice a year, in May and July. They will eat

the greater portion including the young shoots of the wood, and thrive well. We are acquainted with one farmer who keeps a considerable number of cows upon this food, but giving them at the same time 4 lbs. of cake daily, or 5 lbs. of cotton cake, and they give large quantities of milk under this system of feeding, and at the same time it keeps the banks and border trim, preventing also the seeding of weeds. This food would not do for butter-making; for the sale of milk, however, it answers a good purpose all things considered. We first introduced the plan many years ago, until we threw down the banks and drained the ditches, and squared the fields of arable land made it more important for cultivation.

Live Stock.—The Dorset and Hampshire Down ewes are now lambing fast, the ewes being generally in good condition, but we do not hear of much lameness amongst them. We have to report some rather serious losses by abortion. In one case we find the Hampshire ewes have aborted seriously; but the Dorsets, although both breeds have been fed together for three or four months, are producing live lambs. Many farmers blame the Turnips for causing such losses; but there is another view of the matter, for we many years ago found that ewes which had not suffered from lameness would often abort, but those which had been lame, although they would lose condition, still they would bring live lambs. It should be considered that this epidemic lameness arises from blood poisoning, and has been handed down from generation to generation ever since 1840, and the blood of these sheep is still tainted with this fever, and if it does not find issue in the feet by lameness it is always likely to produce abortion through the internal action of fever connected with this complaint. At least this is our experience, and we advise the home farmer to do as we have done ever since 1839 when the epidemic lameness first affected our flocks, but more especially the Down sheep of the southern counties. Let it be borne in mind, in treating the sheep when lame, not to use severe caustic remedies, because that drives the fever back into the system and injures them internally.

FOOD FOR DAIRY COWS.

RICH old grass is the most natural and best of all cattle foods for producing milk of good quality. It is a grave mistake, practised by many intelligent farmers, to keep cows on poor bare pasture without any assistance in the way of house feeding. Many seem to imagine that land which has been tilled for many years without recuperation, until it has become useless for grain-growing, is quite good enough for pastoral purposes, and therefore stint their cows of a proper quantity of nourishment. Nothing could be more short-sighted and unprofitable. It requires, in the first place, a large proportion of food to keep the animal in a strong healthy condition, and it is the surplus assimilated after making good the natural wastes that goes to increase the animal, or for the production of milk. An animal of sound constitution, healthy digestion, and well-developed lacteal organs will prove a good milker.

Those who wish proper returns from these cows should therefore see that they are properly supplied with healthy food and plenty of good pure water. The quality of the milk varies with the different breeds of cattle, their age, the food eaten, and at different periods of the year. The milk of old cows is much thinner than that of young ones of the same breed. It is astonishing the effect rich pasture or rich food has upon the quality as well as the quantity of the milk. Average milk contains, in 100 parts—Water, 87.00; albuminoids, 4.30; fats, 3.80; sugar, 4.28; and ash, 0.62. Normal milk, then, contains about 13 per cent. of solid matter, and this solid matter is made up of nearly equal parts of albuminoids, fats, and sugar, with fully one-half per cent. of ash or mineral matter, consisting chiefly of phosphate of lime and common salt.

Milk is, therefore, unusually rich in nitrogenous compounds and fat, and foods rich in these constituents are required for dairy cows. Animals grazed in poor, dry pastures, in which the albuminoids are deficient and the woody fibre is in excess, will well repay an outlay for artificial food, such as bran mash, or nourishing meal of any kind. We have heretofore pointed out the detrimental effects of distillery slops on dairy cows, the germs of disease it contains, &c., and need only, in this connection, to warn dairymen against it. As abundance of good food increases the quantity and improves the quality of milk, and as the prices of dairy productions are sure to be high this season, it is to the advantage of every farmer to look carefully after the feeding and watering of his cows.—(*Dairyman.*)

TO CURE OEDEMA.—A subscriber of the *Prairie Farmer* writes—"I have a horse that had the scratches and recovered, as I thought. Now his ankles are swelled up to his knees and hocks, and covered with dry specks, looking as if there had been a sore. When you rub them the hair pulls out. Please tell me what the disease is, and give a remedy. Reply—Bathe the swelled legs twice daily with a portion of a solution of an ounce of sulphate of zinc to

each quart of water, and apply a linen bandage wetted with the same solution. Let the horse have liberty outdoors during the daytime when weather permits, and let him go loose in a box stall or shed at night, instead of being tied up. Give morning and evening during every other week, mixed among the food, a powder composed of a drachm of carbonate of iron and two drachms of powdered gentian root. Keep constantly some common salt placed in a corner convenient for the horse to reach at will without mixing it among the food."

POULTRY AND PIGEONS

POULTRY NOTES.

SOME of our contemporaries have published the disqualification of a pair of Black East Indian Ducks at Cambridge as if it were the result of some fraud discovered. This was entirely an error, the exhibitor merely having sent by mistake two Ducks instead of a Duck and drake, to his own manifest disadvantage.

THERE was an interesting class at the Poultry Club Show for Polands of any other than the three generally recognised varieties. It was the first occasion on which, to our knowledge, such a class has ever been given in England. Mr. Beldon showed some very fine Buffs; Mrs. Ricketts a good pair of the same variety; Mr. Rawnsley and Mr. O. E. Cresswell sent Whites. Those who remember this breed thirty years ago say that they should have blue legs, but both these pens have white.

THUS far the season has been a wonderful one for the fertility of early eggs. If only we escape a severe late winter and still severer spring, we may hope to see more forward chickens next summer than we have seen for some years past.

WE are glad to observe a reviving interest in Japanese Silkies. We have often recommended this breed as most useful for rearing delicate Bantams and Pheasants. We have of late discovered that they have another merit—viz., if hatched fairly early the pullets lay well through October and November, when hardly any other birds are laying. A class for Silkies was again given this year at Birmingham and at the Poultry Club Show. Prizes are also offered at the forthcoming shows at Wolverhampton and Yeovil.

WE advise our readers who are fanciers of waterfowl to pay a visit to the ponds at the Regent's Park Gardens. These have of late been greatly extended, and fancy waterfowl of many kinds may now be seen in much happier circumstances than formerly. We lately learnt there that a pair of the beautiful and delicate Japanese Teal lived safely through the winter of 1880-1881.

WE continue to receive questions about Pekin Bantams, and often see advertisements from fanciers who require "good ones." For their information we may state that many experienced breeders would be glad to give a long price even for some bad ones. The truth is that the breed is almost extinct, and to the best of our belief is entirely in the hands of one person, who refuses to part with both eggs and birds.

LADY DARTMOUTH's beautiful little Frizzled Japanese received their due in the shape of second prize at the Poultry Club Show. We always thought them hardly dealt with at the Crystal Palace, where they were passed over on the ground of not really being Japanese Bantams. They have undoubtedly every characteristic of the breed save that their feathers are frizzled and not smooth. It would be a difficult matter, however, for a judge were good Frizzled Brahmas, or Spanish, or any other breed to be exhibited in the general classes: we fancy they would in most cases be passed over. We remember Frizzled White Polish at the Paris Exhibition of 1878, which were duly noticed in the Polish class.—C.

CHICKEN CHOLERA.—This disease is generally due to neglect and bad management, exposure to sun without sufficient shade, stale and impure drinking water, foul and offensive quarters, absence of a regular supply of fresh green food, and confinement. The opposite to these conditions constitutes what is required to prevent the appearance of this disease where it has already developed. Abandon

entirely the old quarters, and remove the poultry at least a hundred yards from the present location to a dry and high ground provided with new and clean housing, roosts and nest, with ready access to pure water and grass, and ample roaming grounds, also proper shading by means of trees and bushes. Provide regularly the roosting place and its surroundings with plenty of ashes. This disease is rarely if ever known where a cool shade, clean runs, fresh cool water, and green food are accessible. Treatment may be attempted in the beginning of the disease, but is next to useless when the disease is advanced; and it is the best course, with a view of putting a stop to the disease, to separate from the healthy ones all that have a dumpish or unhealthy appearance, and destroy the diseased ones, and bury them deeply in some distant place where the poultry can have no access. In the beginning of the disease give each hen a pill prepared of five grains of powdered prepared chalk, the same quantity of rhubarb, three grains of cayenne pepper, and sufficient mucilage. If the pill is too large it may be divided into smaller ones, and the whole given at one time. If, after six hours, the relaxation is not checked, a grain each of opium and ipecacuanha may be given every four to six hours.—(Prairie Farmer.)

OUR LETTER BOX.

Feeding Fowls (Workman).—We cannot decide the question which you submit, as we know only one side of it. The following relative to the subject, which we extract from our poultry manual, appears to bear directly on the question at issue:—"Let every keeper of poultry remember these three most important truths. 1st, That overfeeding, whether by excess of quantity or excess of stimulating quality, is the cause of the most usual diseases and deaths in the poultry-yard. 2nd, That a daily supply of green food, grass, or cabbage leaves, or other kitchen refuse, is most conducive to the health of poultry. Even for chickens a week old it is necessary. 3rdly, That a dry mass of sand, or earth, or coal ashes is absolutely required for poultry to busk in daily. It keeps them free from vermin, and is as needful for them as a bath is to preserve health in human beings. This mass of dry material should be under a shed to protect it from rain, and should have a little gravel and limy rubbish mixed with it. Poultry pick out from it little pebbles to promote the grinding of their food in their gizzards, and chalky matter for the formation of the egg shell. For five hens and a cock of the large kinds the following would be a good week's allowance:—5 lbs. of barley meal; 10 lbs. of potatoes, boiled and mashed; 7 lbs. of whole barley; 3 lbs. of rice boiled; 3 lbs. of bran scalded. They should have their food three times a day. The barley meal, potatoes, rice, and bran should be mixed together, and 1½ lb. given to them morning and evening, and 1 lb. of whole barley in the middle of the day. The supply of green food may be without limit."

Keeping Poultry (S. H.).—There are probably no more useful fowls for table than Dorkings. For providing fowls for table and eggs all the year round we have found a cross between Dorkings and Cochius serviceable. This is a question, however, on which there is a diversity of opinion, and poultry keepers usually soon find out which breed best suits their requirements. Our poultry manual, post free for 6d., will be useful to you, as it contains much information relative to several breeds, and on the management of poultry generally.

Managing Pastures on Chalk (W. C.).—Chalk hill pastures, commonly called downs, have been generally ill-used from time immemorial, the practice being to feed with sheep in the summer and fold them on the arable land at night time, thus robbing daily the pasture which was already too poor to bear anything but the most scanty herbage. We know, however, of a few instances where farmers manage better, and manure the land, waiting until there is grass enough to fold off with the sheep, which receive cake and remain on the pasture night and day; thus the grass is consumed in season, and manure enough left to insure a better and improving crop in the future. Guano and nitrate of soda we consider the best manure for chalk downs or any grass land resting on chalk, as some park land does in the southern and eastern counties.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. January.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun.	8	30.220	41.8	39.5	S.W.	40.3	49.8	36.5	52.2	29.4	0.556
Mon.	9	30.086	39.6	39.3	N.W.	41.7	49.8	37.9	72.3	34.1	—
Tues.	10	30.336	37.7	36.9	W.	40.7	47.3	35.6	53.4	27.3	—
Wed.	11	30.168	48.4	47.4	W.	41.3	52.3	37.1	59.8	31.6	0.018
Thurs.	12	30.414	45.4	45.0	S.	42.5	50.5	44.4	59.6	37.5	—
Friday	13	30.429	45.3	44.2	S.E.	43.2	48.2	41.6	65.6	34.4	—
Satur.	14	30.539	40.7	39.0	S.	42.8	43.2	39.6	43.6	39.2	—
		30.313	42.7	41.6		41.8	48.7	39.0	56.8	33.4	0.574

REMARKS.

8th.—Fair morning, slight rain, with high wind after 1 P.M.
 9th.—Very fine bright day.
 10th.—Fair, but dull.
 11th.—Very fine morning; slight rain and dull afterwards.
 12th.—Fog and very dark from 8 to 9 A.M.; generally dull and damp.
 13th.—Fine spring-like day.
 14th.—Overcast, but fair.
 Temperature rather lower than in the previous week, but still far above the average.—G. J. SYMONS.



26th	TH	Royal Society at 4.30 P.M.
27th	F	Quekett Club at 8 P.M.
28th	S	
29th	SUN	4TH SUNDAY AFTER EPIPHANY.
30th	M	
31st	TU	
1st	W	Society of Arts at 8 P.M.

ECONOMY IN HEATING HOUSES.

MOST readers with ordinary experience will, I am confident, agree with me that there is much room for improvement in some of the present wasteful modes of heating. Many of us are now practising economy closely, and with some the coal or coke bill is a rather serious item in the garden expenditure. Fortunately we have nothing to complain about in this respect, at the same time it is a matter of regret that we are constantly, metaphorically speaking, burning money that might be profitably employed elsewhere.

We have a considerable amount of hot-water piping arranged for top and bottom heat, the whole of which is heated by two sufficiently powerful boilers. The houses and pits are grouped together at the highest end of a sloping garden. The boilers are immediately below the lower ranges—in fact, are directly under two of them. This latter, to a certain extent objectionable arrangement, admits of the utilisation of the heat given off by the brickwork around the boiler, but beyond this the flues are wasted, being carried underground a distance of 26 yards, in one instance intersecting three ranges of pits, both crossing a range of Peach houses, and finally are taken up the back wall of the same range. We have had no occasion to fire hard, yet at any time the extreme end of the flues is always warm, and at times quite hot. Where the flue crosses the pits and an early Peach house it certainly does a little good, but unless watched closely it unduly dries the border. The other flue crosses an unheated Peach house, and in this case does harm, as it invariably induces a too early start in that part of a tree trained to the wall near the flue.

Some years since a flue was taken from one of the boilers through a range of low houses, so as to increase the bottom heat for the Pines then grown here. Unfortunately it burst near the boiler, and the flames escaping burnt the woodwork supporting the gratings, causing much damage to the Pines, and the present arrangement of the flue was the natural consequence. I have recently examined this old flue, and to all appearance its construction is unobjectionable. It was its course that was wrong. It started at nearly right angles with the boiler, and traversed a length of 24 yards with scarcely any perceptible rise. This had the effect of checking the draught and increasing the pressure on the masonry at the commencement of the flue. Had an easy curve been allowed and the flue carried along the back wall, and even back again for top heat, I believe we should now have the benefit of the economical arrangement.

A somewhat similar accident happened in a garden I was at one time connected with. In this case the flue was taken along the back wall of a range of succession Pine pits. The idea I could see was a good one, as, although we had a horizontal tubular boiler, a great amount of heat evidently escaped up the chimney. Unfortunately the materials for forming the flue were of a poor description, and the tradesmen employed were new to that kind of work. There was also a sharp curve given, and it was not long before the flue burst just inside the house, and any plants but Pines would have been nearly ruined.

These instances will serve to demonstrate the necessity of properly constructing a flue, or otherwise it will be a source of danger. Fortunately with earthenware pipes there should be no difficulty in forming a safe flue inside a brick wall. As to the safety as well as efficacy of flues so constructed I have recently had strong, and in some respects very disagreeable, proof. Our Mushroom house is heated with a flue constructed with glazed earthenware pipes, these being enclosed to a certain height with flat stones. During the clear frosty weather experienced the week before Christmas we were burning cinders and fine coal for heating this flue, and by an oversight one evening the full draught was left on. The consequence was an alarm of fire, and this in the Mushroom house with a bed in full bearing! When we at last were able to penetrate through the smoke we found some woodwork, and manure—introduced by way of bottom heat for a nearly cold bed—in contact with the pipes, fully 27 feet from the fire, had ignited. It was impossible to bear the hand on this flue at its furthest end, and yet not one of the pipes burst, the mortar employed at the sockets being also apparently uninjured. As may be imagined, a temperature of 85° with smoke did not improve the Mushrooms, but I had gained valuable knowledge.

Although I would unhesitatingly heat a house entirely with a flue formed of enclosed pipes, I do not advocate a return to this old system solely, but would recommend its more general adoption in conjunction with a boiler and pipes. This is, I am convinced by experience, the most economical mode of heating garden structures; but it should be remembered that it is necessary to have a soot door, especially at the angles, or otherwise sooner or later the flue will become blocked with soot. It is at these doors the only difficulty will be found, but if the pipes are enclosed a good tradesman ought to be able to obviate this, seeing that these curves or angles will generally be at the beginning and end of the flues.

I can conceive it possible, although I have not had an opportunity of testing the point, that if the heat from a furnace were conducted through the structure in a well-constructed flue, that the temperature of the house might be maintained with about half the consumption of fuel requisite for heating the pipes to the necessary degree for attaining the object of the cultivator. Those who may happen to have had experience on this point might communicate it with advantage, as the subject of economical heating is unquestionably of great importance.

In conclusion, I may mention one of our boilers is a plain saddle, the other a powerful "cannon," and in both instances I see that the dampers are at least half way in when the fire is burning brightly. By these means the draught is checked considerably, and the flames caused to play about the boiler

much more than is the case if allowed full draught. This is obviously economising fuel.—W. IGGULDEN.

COLUMBINES FROM SEED.

Now the seed catalogues are published and we are beginning to think what we shall order it is a good time to speak of those perennials which succeed best when grown from seed. Everyone who grows Columbines at all ought to grow them from seed. The plants are difficult to divide, and after they are a year old difficult to transplant well; many of the kinds are short-lived, and our borders require to be constantly replenished from the seed beds; and lastly, most of them are very easily grown from seed. The genus *Aquilegia* has many species enumerated under it, but some of them cross so readily with one another, and vary so much amongst themselves, that the species are difficult to determine. Probably at least half which are mentioned in seed catalogues are varieties or hybrids of *A. vulgaris*, which is one of the most variable flowers in cultivation. The treatment and soil required by the different kinds are by no means the same, but a few general rules apply to all of them.

In the first place you cannot sow Columbines too early in the season. The seedlings must not be forced into growth in a strong heat, which would weaken them; but if sufficiently protected from cold to germinate by the end of February they will be all the better. I have found that success in growing nearly all Columbines—the choicer kinds—depends upon getting a whole year's healthy growth before the first winter. Transplanting is another point to be attended to. Even when the plants come up so thinly as to have plenty of room, they are better for being transplanted when very young. Many of them are by Nature tap-rooted, and we wish to encourage them to divide and spread their roots. A great amount of nonsense is talked about Nature being the best guide. It is a dangerous and fallacious maxim in most things, but especially in gardening, which wishes to improve upon Nature. Experienced foresters know that if they wish an Oak to grow quickly and well they must not leave it where it comes up from the acorn, but dig it up when young and cut off the tap-root; and it is the same with most plants, and certainly with Columbines. Two or three transplantings into very good and rich soil during their first year, and abundance of water whilst growing to encourage vigorous growth, supply the conditions under which they are most likely to flower best the following year. However early they are sown, and however fast they are brought on, I have never known Columbines flower the first year from seed. We have had wonderful accounts during the past autumn of plants flowering out of season, but no one, I think, has mentioned a Columbine, nor have I ever known one flower a second time the same year. The flowering season is May and June, and one species (*A. Skinneri*) flowers in July. All of them ought to flower the year after they are sown. The choicer kinds, as I said before, are for the most part short-lived, some of them dying after their first season's flowering, and many when three or four years old. Nearly all of them ripen seed plentifully, and for reasons given above it is better to save it till spring than to sow it at once.

I propose to mention a few of the more distinct kinds in the order in which they flower. The earliest is *A. viridiflora*, a neat little plant with flowers having the corolla nearly black and the sepals green. It is easily grown, but not often seen in gardens, perhaps not being gaudy enough for the general taste, but it has merits of its own. The Canadian and Californian species with red sepals and yellow centres come next; they are, unfortunately, liable to be damaged by May frosts, but they recover themselves and continue in flower for a long time. A variety called *A. californica hybrida*, said to have been raised in the gardens at Loxford Hall in Essex, is one of the most distinct and handsome Columbines I ever saw. Then come the endless varieties of *Aquilegia vulgaris*, single and double; white, black, purple, blue, rose-coloured and chocolate-coloured, with all the intermediate shades. I consider the single flowers the handsomest, and of these are some distinct forms with clear white corolla, shaded off inside to the colour of the sepals, which are either dark chocolate or blue or clear rose. Some of these may be hybrids, but it is difficult to determine this. A few of the best flowers should every year be selected for seed, and all the worthless varieties weeded out as soon as the flowers show.

Simultaneously with *A. vulgaris* flower two most beautiful Columbines—*A. glandulosa* and *A. cœrulea*, the former a native of Southern Asiatic Russia, the latter of the Rocky Mountains. Both are capricious and liable to die for no obvious reason, and both should therefore be raised in quantity from seed and planted in all the best places. Very well drained positions should be selected. Rockeries are good for them; they are unaccustomed to wet

winters, though they do not mind cold. Some botanists question whether the *A. glandulosa* of nurserymen is the true species; but whether it is or not, its flowers taken singly are the most beautiful of the genus. Three years ago I was successful in raising a splendid bed of seedlings of it. *A. cœrulea*, one of which last year produced sixty large flowers—my last sowing in 1881—though it came up freely, was so late that the plants were not strong enough to bear the wet of winter, and every plant has damped off. Both these kinds have been usefully employed in raising hybrids. One of the most vigorous and handsome Columbines I ever saw was raised, I believe, by Messrs. Ivory of Dorking, and has the flower of *A. glandulosa* and the habit of *A. vulgaris*. If it comes true from seed, as it is said to do, it will be a great acquisition to gardens.

The Golden-flowered Columbine (*A. chrysanth*) is one of the most easy to raise, and one of the most distinct in appearance. It grows very rapidly and makes a large plant at a year old. Some of its hybrids, with *A. canadensis*, are elegant both in form and colour, but the clear yellow of the species is more pleasing. The last I shall mention, and the latest to flower, *A. Skinneri*, is rather scarce in gardens. The mouth of the flower is bright pea-green, and the part next the stalk for about two-thirds of the length is clear red. Being a Rocky Mountain plant it is impatient of wet in winter, and thrives best on a rockery, but I found a large proportion of the seedlings die without flowering; and the plant, though coming readily from seed, is never long-lived. In conclusion there are few gardens in which corners might not be found to hold a few hundred seedling Columbines, the flowering of which would give a fresh interest to the gardener every spring.—C. W. DOD, *Edge Hall, Malpas*.

APPLES.

IN the abundance of all kinds of fruit last year Apples were remarkable for the full crop which choice varieties had in common with all those with which we are most familiar. No matter what form had been imparted to the tree—pyramid, bush, espalier, cordon, or standard—all, with few exceptions, were laden with fruit of great beauty. The flavour, too, was excellent according to the degree in which that quality is possessed by the different varieties. So that the Apple crop of 1881 must be regarded as a full and important one, affording valuable lessons of general utility, for the Apple is much less subject to the influence of soils and climate than the Pear. Sorts of proved excellence may be planted in soil of ordinary depth and fertility in all gardens south of the Trent with reasonable expectations of the fruit proving equal to the description leading to its selection by the planter.

About one hundred varieties are grown here in the kitchen garden and an orchard made some eleven years ago, besides which there are some dozens of large old standards upon the home farm near the farm house, an Elizabethan manor house, with which they are admirably in keeping. Frequently did I admire the crowding blossom of the grand old trees last spring, and the sight of the wonderful crop of fruit which followed was equally enjoyable. I regret, however, to record the loss of some of the finest trees. The decaying stems could not sustain the weight of the overlaid branches, but came crashing to the ground after the fruit had become full grown and was ripening. The fruit was not wasted, but was mixed with other fruit and converted into cider, enough surplus fruit being grown to make four hundred gallons, which has been stored in sherry butts, and will be found an admirable substitute for beer in harvest time. Mixed sorts of Apples make excellent cider, but Sweet Lading, a local variety, is most valued for this purpose. There was a heavy crop of it, and also of White Rosing, another local sort, so much like Manks Codlin that I supposed it to be that. It ripens early and bears heavy crops of fruit, but is an inferior variety unworthy of general culture. Of other prominent varieties in this old orchard that continue to bear fruit abundantly in every favourable season there are Dutch Codlin, Devonshire Quarrenden, Fearn's Pippin, a sight to astonish advocates of miniature fruit trees with its twenty to thirty bushels of handsome deep crimson fruit; Lucombe's Seedling; Joanneting, which I am bound to say still proves very useful, and is highly valued despite the hard things that have been said about it; Ribston Pippin, as usual much cankered; Northern Greening, and Gooseberry Apple. The two last are most excellent. I am using Northern Greening now for cooking, and find it a general favourite. Of Gooseberry several bushels are in the fruit store for use three or four months hence.

Although not an advocate of standards I cannot altogether decry them, so frequently have they been useful; and of sorts that have always had plenty of fruit in favourable seasons I recall the following:—Lemon Pippin is most useful; Court Pendu-Plat,

called Court-pendu in North Kent, where it is much grown, and held in high repute for the excellence of its peculiar flattened fruit, and for the abundance of its annual crop, a failure hardly ever being known owing to its lateness in starting into growth and blossom. Downton Pippin, Court of Wick Pippin, Golden Harvey are much valued as dessert Apples. Winter Quoining. Duchess of Oldenburg, is termed a dessert sort in the "Fruit Manual," but which I consider my best early kitchen Apple. It never fails to bear fruit abundantly, and growers for market would find an orchard of it a profitable investment. The late Mr. J. R. Pearson of Chilwell first called my attention to the attractive appearance of its bright-coloured fruit, for which he said it was much valued in Nottingham, preference always being given to it by purchasers, nor was its gay appearance misleading, for it is excellent either for eating or cooking. Dumelow's Seedling is a popular kind in Kentish orchards. Lord Suffield, of which I have seen standards heavily laden with fruit in the neighbourhood of smoky Manchester. Irish Peach, very fruitful and excellent. I have known it and liked it from boyhood; it was an especial favourite of my father's, who had two large trees which rarely failed to bear fruit freely. Its growing popularity and the warm praise recently accorded it prove that, in this instance at any rate, my boyish taste was not at fault, though I fear I was then almost equally fond of Golden Knob. Summer Pearmain, of which I once knew a tree of extraordinary size. Blenheim Pippin, Keswick Codlin, always good upon standard or dwarf; Sam Young, and Flower of Kent.

Standards answer well in situations sheltered from high winds and in good deep soil, which is quite indispensable, for it is useless to expect them to become large trees and bear abundant crops of fine fruit in a poor thin soil. Pay especial attention to planting well and to securing the trees erect and firmly in this their permanent position, and they will reward your care with stout free growth and soon afford some fruit.—EDWARD LUCKHURST.

(To be continued.)

EAST LOTHIAN STOCKS.

It is thought that something in the climate or soil of the "Garden of Scotland" is a necessity when this variety of Stock is grown; in short, that you must reside in East Lothian before you can succeed with it. That opinion may be a correct one, but to aid those disposed to try their skill with this beautiful variety I will relate how it thrives in its native country; at the same time I may state that friends a few hundreds of miles off have written delightedly of their success.

As I grow only a few hundred plants the seedlings are raised in boxes. The beginning of February is a good time to sow seed, though it may be deferred to the middle of that month. A temperature of 55° is suitable, and a position near the glass when the seed leaves are developing renders them much stronger and more healthy than if raised away from the direct light. When the seedlings are at this stage many find damping a cause of annoyance and loss. To obviate that keep the structure well ventilated, and when the soil requires moistening dip the boxes into a tank of water, at the same time taking care that the water does not flow over the surface of the soil. But the most certain preventive of damping is to prick the seedlings out in cold pits or frames. Ordinary spring frosts if protection be given do the plants no harm.

A good compost for the seedlings is made of two parts loam to one part old Mushroom-bed refuse. Place this 2 or 3 inches thick on a hard bottom, and plant out the seedlings 3 inches apart each way. Treat the plants according to the weather, always bearing in mind that they are hardy in ordinary winters. Cases occurred even last winter of plants passing through it safely. In April I plant them out, protecting them from sun the first few days after the process by inverting flower pots over them. To do well a highly cultivated soil is required. Treated as above the plants are in flower in July. We are cutting up to the present time a gallon hamper of flowers weekly from our small stock of plants. The only thing that affects their continued flowering in the autumn is drought.—R. P. B.

EARLY PEAS.—Many find it convenient to start their Peas in boxes under glass, or in pieces of turf, with the view of transferring them subsequently to prepared trenches. In doing this there is one error too likely to be committed where press of other business causes the Peas to be forgotten, even for a few days. They grow rapidly when the temperature exceeds 50°, as it has even in the open air on the majority of days here the present winter. If the Peas have a deficiency of either light or air they grow long, thin, and delicate, and never recover. A gardener lately pointed out his crop to me grown under

those circumstances. They should be fully exposed during such mild weather. I have Carter's Challenger, a dwarf, robust, stout grower, 3 inches high already; an admirable kind, not exceeding 2½ feet high in ordinary seasons.—W. J. M., Clonmel.

LITHOSPERMUM PROSTRATUM.

THIS is a useful plant for a rockery, and is well known in many gardens where such structures receive some attention. The plant grows freely, trailing over the stones or rocks, and clothing them with its dark green shoots and foliage, amongst which appear the rich dark blue flowers in profusion. For the margins of borders where the soil is not too heavy, or the situation too low and damp, this little Lithospermum is also well adapted, and blooms throughout the summer months and often late into autumn. Mr. J. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, has it growing in this way, a border near the



Fig. 14.—Lithospermum prostratum.

house being rendered very attractive by a band of the plants. These were flowering as late as the first week in November of the present year, and a spray from one of them is represented in the woodcut (fig. 14), which shows the chief characters of foliage and flowers.

THE WEATHER IN DURHAM.

THE weather here has been of the most spring-like description since Christmas. Everywhere signs of life in the vegetable world are seen. Daisies, Dandelions, and other wild flowers have never ceased to bloom, and since the advent of the year I have seen a bloom or two of the Coltsfoot, or, as we call it in the north, Foal-foot. Grass is growing rapidly, and the buds of all trees are swelling. Roses are more demonstrative than ever I have known them at this time of the year. Outdoor work is well on, and the land is in "rare fettle," as we call it, so much so that we do not hesitate to recommend the immediate planting of Potatoes where there is a difficulty in keeping them from growing or sprouting.

The land was not in such good trim for the reception of seed last year in April as it is now, and farmers here are taking full advantage of it. Large breadths of ploughing have been finished in dry weather—an important factor of success. Last year I saw water follow the plough down the furrow in April; this year in the same field the soil is turning up light and dry, and might be planted at once as far as the condition is concerned.

Birds are beginning to build, having been in song since Christmas, especially thrushes and blackbirds. Fieldfares and redwings are absent, but huge flocks of the snow bunting darken the air every now and again, and seem to be doing good service in the newly ploughed fields. Bullfinches are rare on the north-east coast, in that part of the County Palatine anciently known as Werewickshire, so that gardeners do not suffer much from their ravages; but sparrows, from their numbers, eat far more buds than bullfinches, and can only be kept from doing injury by judicious feeding. We do not destroy a single bird, but feed them all alike, and rarely they do us any harm.—F.

VINES AT LONGLEAT.

THEIR HISTORY AND MANAGEMENT.

In this little history of what have been pronounced by competent judges to be somewhat remarkable productions, I shall endeavour to give a truthful account of what was done to produce them, how it was done, the reasons for doing it, and the lessons gained during the time. I shall take my readers into my confidence, not flinching from detailing failures and disappointments; and if any one of them should be so uncharitable as to say, "Yes, I could have told you so," when an experiment has been described which resulted differently from what I had expected, I have no doubt there are others who will sympathise and encourage by saying the disappointments are all lessons, and the successes more than counterbalance them.

THE VINERY.

Early in the year 1869 I took charge of these gardens, and amongst other things was requested to improve the supply of Grapes, this fruit being in great request during winter and spring. The structures then existing were pronounced inadequate, and my noble employer was persuaded to erect a building more in accordance with my ideas of what a vinery should be. Mr. Buckenham, the able clerk of the works, was instructed to prepare plans, and the month of April saw the commencement of the present structure, which everybody acknowledges gives him great credit, and I must add that it has given me satisfaction in every way. The total length is 216 feet, and the breadth inside the walls 30 feet. It has a span roof running north and south, is divided into three compartments—one about 75 feet for late Grapes; another, the middle one, for Muscats is about 80 feet; and the other for Hamburgs is about 60 feet. The walls are built on arches, and as there were at the time some rather wild notions about the rambling disposition of Vine roots, provision was made on the east side for an outside border to extend 30 feet by small breadths at a time as required. As the house stands on the side of a hill facing eastwards there is not much chance of border-making on the western side without some heavy excavating, but according to present appearances it is not likely to be required, for the Vines are still confined to less than three parts of the inside border, and there appears as yet to be no difficulty in giving them all they want there.

THE VENTILATION.

Ventilation, which is the weak point in so many of our modern light-built houses, is here ample, and is afforded by means of upright sashes 2 feet 9 inches deep along each side, tied together in lengths of 30 to 40 feet, and moving on their centres so as to open to their utmost capacity without much weight on the lever. Sashes opening this way, although they are objectionable in some cases, undoubtedly admit more air than

when they swing on a hinge at the top, for in the latter case they can scarcely be brought into a horizontal position, and a deeper sash is consequently necessary. The principal span is crowned by another and smaller span, generally called a lantern; this is 6 feet wide with upright sashes 2 feet deep, and these also swing in a similar manner to the lower sashes, excepting that they move on a rod which is rather more than half way up, thus giving sufficient weight to the lower part to make it close itself when once the chain by which it is regulated is unfastened. With such ventilation there is no difficulty in keeping the temperature down below 100° during the hottest weather, and this, too, when it is managed properly without draught; but I shall have something to say on this part of the subject further on, and I now proceed to speak of other important subjects.

THE DRAINAGE AND THE WATER SUPPLY.

The ground on which the house is built besides sloping to the east also falls considerably to the north. It was necessary, therefore, in order to have it level to excavate at the south-west corner some 9 or 10 feet into the stiff clay, while the north-east corner is slightly above the old level, and it was thought advisable in order to have the bottom all alike to concrete it some 4 inches thick. I have no doubt that concrete bottoms are often made where not required, and are then in fact a disadvantage, but I think there was some excuse for having it here. Good drains were made outside the house along each side about 2 feet from the wall, and the concrete bottom had a fall of about 6 inches each way from beneath the ridge to these drains, being continued through the arches, which were afterwards bricked up and pigeon-holed at the bottom.

A tank was made for catching rain water in each compartment below the level of the concrete (with the exception of a man-hole which is carried up nearly to the surface of the border). All three tanks are connected by a drain pipe so that no water can run away till they are all filled, and each has a pump attached to it. There is provision for a further supply of water from a hydraulic ram when the rain water fails. Probably some of my readers will say the method of supplying water is a cumbrous one, that we ought to have a cistern outside on a higher level, and a supply of hose, &c., inside the house; but as my notions of watering Vines differ somewhat from those of most people I will ask them to suspend their judgment on this point.

The concrete floor dry, drainage to the depth of 8 or 10 inches was placed over it in the shape of stones, brickbats, and ballast, the experiment in burning the latter proving rather a costly one; but as I knew nothing at that time of such work it was entrusted to one who was said to have had practice of the sort on the railway, but either from his fault or the fault of the material it proved to be much more costly than fetching bricks and stones from a distance. But someone will say, "Why is all this drainage necessary? You have good tile drains and ample slope of floor, surely a few drain tiles across the floor and a couple of inches of rubble should be sufficient to take away all surplus water." Probably it would so long as it was kept clear, but a Vine border is made to last a century, and it is well to make doubly sure that a stoppage cannot possibly take place under anything like fair management. But this is not by any means the only or the principal

reason for placing 8 or 10 inches of rubble under it. The subject of aëration is a very important one, and possibly not fully understood; but this much we know, that the roots of plants cannot live without air, that air follows each supply of water given to the border, and that a system of drainage which allows a great quantity of water to be applied necessarily secures abundant aëration. Brickbats and similar material also have some effect on the temperature of the soil above them, not only from the warmth contained in themselves but from the body of air contained in the interstices, and which, being cut off from direct contact with the atmosphere of the house and that outside, must vary but very slowly. I consider that those who insert drain pipes vertically through their borders to connect the air of the drainage with that of the ordinary atmosphere make a mistake and neutralise to some extent the good offices of the rubble, because they make it possible for a circulation of air to take place otherwise than through the border. That some who have adopted this plan have been very successful I admit, but it was rather in spite of this arrangement than because of it.—WM. TAYLOR.

(To be continued.)

BLUE ROSES.

In last week's Journal "A. C." asks my opinion as to the conclusions arrived at by Mr. Grant Allen in the "Cornhill" for January. I have not seen the article, but my own views are not altogether in accord with those attributed to Mr. Allen; for although I look upon a really blue Rose as very remote, the *premier pas* has long since been accomplished, as those who recollect some of the old French and Bourbons with slaty tints, and the still more distinct H.P. Ardoisée de Lyon, will admit. This Rose I was wont to grow and show for a considerable time for the excellent effect it produced in setting off by contrast the brilliant carmine scarlet of *Senateur Vaisse* and others of that type, but I need scarcely say it was always to my material disadvantage as an exhibitor, for neither the Rose nor its colour was popular with the judges. Still, I see no reason why through this variety, or the race from which it sprung, a slaty violet, and, perhaps with the intervention of one of the *Pierre Notting* type, a true violet should not be obtained, and that lighter violet tints should also follow; and it will be only a question of time and money as to when a better blue in the Rose than we yet have in the *Stock*, *Phlox Drummondii*, and some other genera shall appear.

Raisers have not as yet turned their attention in this direction, or have rather discontinued to do so, simply because it would not have paid, bright-coloured and white H.P.'s having only hitherto been popular, and to have sent out a "washy" or slaty blue Rose would have only been courting loss to the raiser and the propagators, certain condemnation by Rose critics, and a very frigid recognition by that most appreciative of all critics, public opinion, which has until recently preferred bright colours to dull in the proportion of something like 1000 to 1. Should, however, the present reign of æstheticism in colour be prolonged, perhaps Mr. Bennett, or a raiser with an object, may be induced to take a step beyond the *premier pas* in the direction of a blue Rose, although I regret to think that a "true blue" can only be a desideratum for the present generation of rosarians. A yellow Perpetual ought long since to have been evolved from Lyons or the sunny south. Now, however, that Rose-crossing in earnest is being taken up with skill, judgment, and the best appliances in this country and the United States, I shall be a dishonoured prophet if we do not secure during the next decade not only a yellow, but a violet and a white A. K. Williams.—T. LAXTON, *Bedford*.

GROWING POTATOES IN POTS.—As the time for starting early Potatoes has arrived, perhaps some of your numerous readers will be glad to learn others' experience, especially as making hotbeds for forcing them are very often inconvenient. I would wish to give a hint as to my experience. I start them by placing the sets in boxes in a compost of three parts leaf soil to one part of yellow loam. They are then placed in the boiler house, leaving them there for about a fortnight, by which time they will have produced plenty of fibrous roots. They are then transferred singly into 12-inch pots, employing a compost of yellow loam and a third part of leaf soil. By placing

them in a cold vinery or Peach house we can insure new Potatoes for table at Easter. Rivers' Royal Ashleaf Kidney and Early May are the varieties grown.—A POTATO FORCER.

PRIZE SCHEDULES.

THIS subject has often been alluded to by your able correspondent Mr. Moorman, and has also been the object of much care and concern with some of your "north country" friends. As the season is now at hand when local societies form their lists for the current year, it may not be without interest to say something on the general principles of the wording of prize lists apart from their bearing upon specialities, either Chrysanthemums or Pelargoniums, or anything in particular.

The primary object of all such societies is, or ought to be, the advancement of the science of horticulture, and the offer of prizes for the various productions of the exponents thereof is the means taken to secure the object of the society. It must be perfectly obvious that all competitors ought, so far as the actual competition is concerned, to be placed upon an equality; and the awards of the judges ought to be given in strict conformity with the conditions laid down for the competition by the society. How this is to be done in the face of some of the ambiguous expressions used in some, indeed in most lists, is not by any means so obvious.

All such words as "dish," "bunch" (except, of course, as applied to Grapes), "collection," "group," "pot of," "basket of," "tray of," &c., ought either to be left out of the list altogether, or there ought to be a definition of each term laid down in the regulations of the exhibition and strictly enforced, disqualification being the penalty for disobedience or disregard of the society's rules.

Perhaps no term in the list of prizes is the cause of so much contention with both judges and competitors alike as "collection of," as applied to fruits and vegetables. In flower-show phraseology so much money is offered for the "best collection of six (or more as the case may be) dishes of fruits or vegetables." Anything more vague and indefinite would be difficult to imagine; and anything more likely to give one exhibitor an undue advantage over another one can scarcely conceive. What sorts of fruits are to take precedence, and how much, over others? In what relation do the two "collections," which are exactly alike in every other respect save and except that one has a "dish" of Plums and the other a "dish" of Pears, both as near perfection as may be? And, again, in vegetables, each exhibitor has five of the required number of sorts equally good, the other two dishes being, one Tomatoes, and the other Mushrooms of equal quality. Which wins? Are such distinctions as those, and they are of daily occurrence, to be left to the whim and caprice of the judges, or are they to be settled according to some generally or locally accepted rule?

The above are only solitary instances of the numerous ways in which vague and indistinct wording of prize lists give rise to so much cause for complaint from exhibitors, and so much annoyance to judges. One local society lays down a stipulation that exhibitors are to show their flowers to the best advantage, "but no artificial means are to be used." This frightens some exhibitors from showing their cut flowers in paper collars, which some of the local judges deem indispensable on the show bench. What is meant by artificial means is not shown by any other clause in the regulations. Another society says that Grapes are to be "shown on stands as at the London exhibitions," but very few of the local exhibitors—who, by the way, always make or mar the show wherever it may be—have been at any exhibition in London, and have the most shadowy ideas imaginable about the shape, size, or form of the formidable London instrument. Referring again to the word "dish," what is a "dish" of fruit? A prize is offered for a dish of Currants, one man staging a "dish" which we will say amounts to nearly two quarts. Another exhibitor, who has always been used to show one quart, stages that quantity, and although his fruit is as good as his compeer's, he finds that he has only the second prize, for no other apparent reason than that of staging a smaller quantity. The same remark applies to "dishes" of Apples and Pears, and in fact to all sorts of fruits and vegetables; everyone forms his own estimate of what constitutes a "dish." All of this might be avoided if some good rule was made by a competent authority, and accepted as the standard by which judges and competitors should be guided. It would be quite easy to lay down a law as to how many or how much of various sorts of fruits and vegetables constituted a "dish," but it would be far more to the purpose if societies would state the exact quantity of each particular exhibit required, and compel the exhibitor to obey their laws. And in the case of collections, much annoyance and many heart-burnings would be saved if the prize list showed

exactly what each competitor was to include in or exclude from his "collection."

Cannot some rules be formulated by which the position of various fruits could be gauged in relation to others? As in the case of the Plums and Pears, Figs against Neectarines, a Melon against six first-rate Peaches, Cherries against Strawberries, and so on, which of these would have the preference?

In the meantime it would be well for societies busy with their prize lists to go carefully over them, and carefully eliminate from them every ambiguous term or word and every indistinct or vague sentence, so that at the day of the show all the exhibitors will meet on equal terms, and the prizes will be awarded according to the conditions that each one had a right to expect, and not given at the whim and caprice of a crotchety judge, or altered at the request of a quibbling competitor.

Rules should be carefully compiled and framed, and should be firmly adhered to. Only in such ways can the success of societies be guaranteed as regards the object ostensibly in view—the advancement of the science of horticulture.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth.*

CAMELLIA BUDS FALLING.

WE have suffered in a similar way to "A SCOTCHMAN" (page 47) in the loss of a large percentage of our Camellia buds. The plants are in pots, and I am fully convinced the failure is owing to nothing more nor less than inefficient root-action. I can scarcely imagine your correspondent intended his remarks to apply to all plants, whether good, bad, or indifferent. This, however, appears to have been the case with some of your readers, and the failure of our plants was at once attributed to the fact that they were kept indoors through the summer. If the system advocated were so highly essential, would not some of the grand specimens we see planted out permanently in conservatories cast their buds? Not only are the latter kept indoors through the summer, but many of them in a temperature during winter suitable for Euphorbias, Poinsettias, and Calanthes seem to enjoy their quarters rather than otherwise.

I will admit that unhealthy plants would exist out of doors in favourable situations during summer; yet I think they would be much safer placed in some structure where they could be carefully watered, partially shaded, and protected from such high winds and drenching rains as we experienced last year in the valley of the Ribble.—PEG O'NEL.

PRODUCTION OR NON-PRODUCTION OF POTATO SHOOT.

YOUR excellent correspondents, "W. J. M." and Mr. Iggulden, have been discussing lately how best to deal with the admittedly evil state of sprouted Potatoes. Is not prevention better than cure? Both seem to think there is no help for their Potatoes sprouting. We have kept Potatoes from starting far into summer merely by keeping them thinly spread in a cool, dry, airy shed. Exposing them to the light is even more potent in preventing premature growth. It is only partially a question of temperature, and if either of your correspondents doubt this they have only to put a considerable heap of damp Potatoes in a damp corner of a room and cover them, and to expose another portion to the full influence of light and air by spreading them thinly near a window, to be convinced. Allowing Potatoes to sprout weeks before their time certainly spoils them to some extent for seed, and more for use. Let those who fear the growing of their seed Potatoes act on this hint if it is not already too late—better late than never; and in the case of those with shoots too long to retain, rub the sprouts off and proceed to prevent further growing, for the growth surely steals the stored food in the tubers, hence the weakness of the second growth.

Mr. Iggulden "takes a 'snip' of each tuber to hasten decomposition." Why? This question we asked ourselves some years ago when engaged in the operation. It was one of our first lessons in Potato-growing, and we were assured that inducing the tubers to decay was helpful to the young plants. For years we followed the practice, but, on considering the matter, became doubtful of its accuracy.

Grains of Wheat and seeds generally, including such large ones as Peas and Beans, when they start into growth have their insoluble starch converted into soluble sugar, which dissolved in water becomes the sap upon which the young plants live till green leaves form to work up fresh and perfect sap. So do trees in spring, and the more of this starch there is stored up—Vine-growers, take a note—the more sap there is in spring. Are Potatoes an exception? Well, if part of a tree "decomposes," or

is cut off, and with it a part of this life-giving fluid destroyed, will the tree grow better? If I cause half my Peas and Beans to decay, will they grow stronger? Will not the sap thus destroyed be a loss? And if so in the case of Peas and Beans, is it not also so in the case of the Potatoes?

The proof o' the puddin' is the preein', and "nothing beats a trial," so a trial was made. Taking sixty tubers of Early Rose, we took a "snip" of thirty, and the other thirty were untouched. They were planted side by side under conditions precisely similar. The thirty untouched grew and in nearly equal strength. Those operated on grew less regularly: five never came at all—a trick Early Rose often plays here—and seven grew less strongly, some of them very weakly, than any in the other lot. We were satisfied. We intended weighing each lot, but failed to say they were not to be touched, so one day a dish was dug from the best lot, and the weights were not obtained. Since then we have neither cut nor "snipped" our very earliest, nor any particularly tender-constituted Potatoes, unless for a special reason. Ordinary kinds planted at ordinary seasons we cut mostly into single eyes, and are prepared to defend the practice. We are satisfied, however, that rapid decomposition of the mother tuber is an evil, and now never deliberately try to hasten it.—SINGLE-HANDED.

USEFUL GREVILLEAS.

THE genus Grevillea is a peculiar one, and especially interesting for the strange forms of the flowers and their evident peculiar adaptation for cross-fertilisation. Beyond this, however, several species possess characters of real value to the gardener, being free in growth, graceful in habit, and bearing bright though small flowers. The proportion of useful species is very small compared with the large number of forms known, and of which few are in cultivation. About 150 species have been described, but in few gardens, except such establishments as Kew, will more than half a dozen be found. Some are grown simply for the singularity of their flowers, which are often of a dull greenish or yellowish white, the habit stiff, ungraceful, and the plants of very slow growth. Others, however, possess quite the opposite of these characters—attractive flowers, neat, compact, yet free habit, and quick growth.

They are all natives of Australia, and succeed well in ordinary greenhouses; indeed, some are sufficiently hardy to stand out all the winter in sheltered positions in the south or west of England. During the summer they will all succeed well outside, but except *G. robusta* they are not much employed for outdoor bedding. They are much better suited for the shelves or stages of the greenhouse, where they invariably attract much admiration when in good condition. Some may be raised from seeds, which are usually imported, as seeds are rarely produced in this country, but the chief of those described in these notes are easily increased by cuttings. The best method to be adopted with each will, however, be mentioned under their respective names.

G. THELEMANNIANA.—One of the most useful and graceful of the forms in cultivation known to me is that represented in the woodcut (fig. 15). It is almost constantly in flower, but is especially fine at the present time and onwards for several months. It is also readily increased by cuttings, which strike in a cool temperature if inserted in autumn. The moderately firm shoots, 2 or 3 inches long, should be selected, neatly cut at the base and trimmed. Prepare a compost of light loam, peat, and sand in about equal parts, finely sifted, and place it rather firmly in the pots, which have been previously well drained. Surface with fine sand and insert the cuttings; water carefully to settle the soil round them, place a bellglass over them, and transfer the pots to a cool frame or house near the glass, but where they can be shaded if necessary. There they can remain until spring, requiring little attention in the meanwhile. By that time most of the cuttings will have formed roots or callused at the base, and may be carefully potted singly in similar soil.

The plant is very graceful in habit, the branches being slender and having a drooping tendency. The leaves are pinnate, with linear divisions and bright green. The flowers are borne in pendulous dense racemes, 3 or 4 inches long. They are bright deep rose colour and yellowish at the tip, with the long filiform style bright red. It has been figured and described under the name of *G. Preissi*, and seeds were sent to Kew by Mr. Du Boulay of Perth, South West Australia, hearing that name about 1869. The plants produced from these seeds first flowered in 1870. The species was found by Preiss at Drummond, near Perth. It is said to attain the height of 5 feet or more in its native country.

G. ERICIFOLIA.—A pretty form with very neat flowers, the

lower part of which is bright red, the upper greenish yellow, the styles being long and red, and they are borne in short loose racemes. The leaves are about an inch long, linear, dark green, and the habit of the plant is rather loose, but it can easily be kept in good shape by a few light stakes. The flowers are freely produced, and the plants succeed admirably in pots for the greenhouse; this is well shown at Kew, where both in the winter garden and the ordinary show house several specimens are noticeable. It may be remarked that seeds of this species were first received at the establishment named from Baron Von Mueller, who forwarded them from Australia, where the plant is rather widely distributed. Similar culture to that accorded *G. Thelemanniana* will suit *G. ericifolia*, being careful at all times that the pots are well drained, as any approach to stagnation in the



Fig. 15.—*Grevillea Thelemanniana*.

soil is highly detrimental to the plants. With regard to the propagation of this and other species of similar habit, it should be observed that some growers prefer striking the cuttings in slight heat, the pots being plunged in a bed under a frame. As a rule, however, this should only be adopted when the plants from which the cuttings are taken have grown in a greenhouse kept somewhat above the ordinary temperature, as if under cool treatment the method previously mentioned is usually more successful.

G. ACANTHIFOLIA.—This is a very distinct form, in the foliage especially, but the flowers are by no means unattractive, being of a reddish hue, and closely set in racemes 3 or 4 inches long. As in the others, the styles are filiform, long, and pinkish, imparting to the inflorescence something of the appearance of a miniature brush. The leaves are rigid, firm in texture, cut nearly to the centre, the lower divisions being also coarsely toothed; they are dark green, and in form, as the name implies, very suggestive of *Acanthus* foliage. It was found by Allan Cunningham in the early part of the present century, and was by him introduced to England. The localities it was chiefly found in—namely, peaty bogs and the banks of rivers in Australia, would seem to indicate

that it requires in cultivation a greater supply of water than its relations, but such is not the case, for it can be treated similarly to those already described.

G. ROSMARINIFOLIA.—Another of Cunningham's discoveries, and equally as attractive as the preceding. It is also additionally interesting for its comparative hardiness in the southern and western portions of this country. In some suitable positions it succeeds very well planted against a wall, and flowers freely. It is also useful for growing in pots, and produces its dense racemes of crimson-coloured flowers in abundance. The plant is of robust habit, the foliage being suggestive of the Rosemary in form, as the specific names implies, and very dark green in colour.

G. ROBUSTA.—The value of this *Grevillea* is now thoroughly established, but on quite different characters to the others, which are chiefly grown for their flowers. As is now well known, this is principally useful by reason of its neatly divided foliage, quick growth, and adaptability for decorative purposes. It is also largely employed in subtropical bedding, for which it is especially suited, as a specimen of good size can be soon obtained. Plants are chiefly raised from imported seeds sown in light soil in heat; and if this be done in autumn, the plants being potted and encouraged to grow vigorously, specimens a foot or more in height can be secured by the following spring. It is worthy of note that the first plant introduced to this country was sent to Kew by Allan Cunningham, and for sometime that was the only one in England. What the introducer then wrote respecting it is interesting and worth quoting—"This noble species of *Grevillea* on the banks of the Brisbane river vies in size and stature with the *Flindersia*, *Oxleya*, and other large forest trees, but by none is it surpassed in height in its native woods except by the *Araucaria* of this region. Some aged trunks of *G. robusta* I have found 9 feet in circumference, so that it is probably the largest tree of the order that has yet been discovered, surpassing the *Knightia* of New Zealand and the *Orites excelsa* of Port Macquarrie. From its deeply dissected foliage and the silkiness of the under side it has obtained the name of Silk Oak among the Pine-cutters of Moreton Bay; but its timber, which is of a tough fibre, has not been appropriated to any use." Respecting its quick growth, in some of the colonies where it has been planted I have been credibly informed that specimens have attained the height of 50 feet in ten years.

Of the numerous other species known few are in cultivation, and few perhaps possess any particular value to horticulturists. *G. punicea* has the brightest flowers (deep red) of any known to me, but I am uncertain if it is now in cultivation. *G. Hilli* is a strong-growing form, introduced by Messrs. Veitch about twenty years ago, and certificated by the Royal Horticultural Society in 1862. It is somewhat strange that of all the numerous members of the *Proteaceæ*, such as *Banksias* and others, which were at one time cultivated in large collections, *Grevilleas* are now the only plants generally represented in gardens.—L. C.

PROFIT AND LOSS IN VEGETABLE-GROWING.

"A CITY MAN" may be too ready to draw conclusions from what comes under his notice. It is not by any means certain that either the coster or the agent from whom the coster bought the Cauliflowers had a profit upon that particular purchase, although it is quite reasonable to suppose so. But I should think many thousands of heads of vegetables of every sort that find their way to London are often sold at a loss, and that often a large one. Even in cases of large prices and profits it is not always the producer that reaps the benefit; indeed, he is seldom any better for famine prices.

I have often pointed out in these pages and elsewhere the desirability of bringing producer and consumer into a closer relationship with each other. Produce would then be sold at a more uniform rate, and the producer would reap the reward due to him for his labour. The consumer would benefit by it to the extent of paying the producer a just and fair interest for capital and labour, which would in the end cheapen the produce of our food-producing area in the same ratio as it would tend to improve the quality and increase the quantity of home-grown food, thus decreasing the necessary importation of food and the exportation of money.

As soon as growers can depend upon securing such prices as will show a fair profit, then the produce of the land will increase; but the bane of fruit and vegetable-growing is the agency system, which robs the consumer alike of his cheap food as it does the producer of his fair share of the profit due to him. I know that there is much to be said both for and against both systems; but no one, I think, will deny that there is something radically wrong in the manner in which our large towns are supplied with fruits

and vegetables—nearly always sold at famine prices, and the grower not paid for growing them.—PETER FERGUSON.



MESSRS. E. H. KRELAGE & SON, Haarlem, Holland, send us the following communication, which will interest all concerned in the CUT FLOWER TRADE—"There have been serious complaints from the English horticultural trade, that last year during the flowering period of Hyacinths, Tulips, and other Dutch bulbous and tuberous plants, the English markets have been overstocked by large quantities of cut flowers of these plants sent from Holland; thereby the price of English-grown flowers was in many cases so much depreciated that, instead of giving any profit, there was a great loss in this branch of cultivation. The majority of Dutch bulb-growers and exporters have thought it necessary to interfere in the matter, and in consequence of this at a general meeting of the General Association for the Promotion of Bulb Cultivation at Haarlem (a Society which has nearly five hundred members in twelve different sections), resolutions have been passed against this trade in cut flowers, because it is considered to largely damage the trade in bulbs. The Society wishes every bulb-grower or exporter, whether a member of the Society or not, to give a declaration to the following effect—1, To send out neither in the interior nor abroad any cut flowers of Hyacinths, Tulips, Narcissuses, Anemones, Ranunculuses, or Gladioli, except—*a*, As samples in cases under five kilogrammes; *b*, Without charge for exhibition purpose. 2, Neither to sell nor to give to others any such cut flowers as an article of trade. The signatures to these declarations will be collected by the officers of the sections of the Society. It may be expected that this measure will have the desired effect."

— JUST on the eve of going to press we receive the following from Mr. Z. Stevens of Trentham relative to the proposed TESTIMONIAL TO MR. THOMAS MOORE:—"I could wish that all gardeners might be able to afford something to swell the general total, but this I know is not possible; however, if each will give according to his means 'the presentation will become an epoch in the history of horticulture.'"

— THE programme of essays to be read before the SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY during the first half of the present year comprises a variety of well-selected subjects connected with gardening and floriculture. We are glad to see that this Society is now becoming firmly established and likely to do much good in the district. Instead of the monthly shows it has been decided to hold two larger exhibitions, one on March 2nd and the other on the 30th and 31st of May; the latter is expected to prove very satisfactory. It is worthy of note that, in the place of selecting judges for each show, a permanent horticultural committee has been selected to exercise similar functions to the Committees of the Royal Horticultural Society.

— IN a few days there will be a handsome display of *DENDROBIUM NOBILE* AND ITS VARIETIES in the gardens, Shirecliffe Hall, Sheffield. There are nine specimens in pots varying from 7 inches to 13 inches in diameter, and about 1300 blossoms are expanding. The condition of these plants and others under the charge of Mr. J. Udale are alike creditable to his cultural skill.

— A CORRESPONDENT advises that "*CLEMATIS INDIVISA LOBATA* be grown in every greenhouse, as it is so useful for affording a liberal supply of flowers. When these are first pro-

duced they are greenish white, but as they expand they become pure white. The plant grows quickly, is not subject to attacks of insects—a character possessed by few greenhouse plants—and though the foliage is abundant, it is not so dense as to unduly shade the plants beneath."

— A SUCCESSFUL cultivator writes to us as follows on *DIELYTRA SPECTABILIS*—"For conservatory decoration during the winter months this plant is quite indispensable. Moreover, it is one of the cheapest of plants, and easily propagated. To raise a stock any plants that can be spared from the forcing stock should be cut up and transplanted any time from September till March. Single buds with small pieces of roots attached will, if planted on good soil a foot apart each way, be fine clumps with half a dozen strong buds each for forcing the following year."

— "J. U. S." writes—"The brilliant *AZALEA OBTUSA* should be more generally grown than it is at present. I have a fine specimen flowering most freely, which is very attractive. It is quite as free as *A. amcena*, and the colour of the neat flowers is a bright red with a distinct shade of scarlet." One of the varieties shown by Mr. Todman at Kensington recently was an improvement on *A. obtusa*, having slightly larger flowers very bright in colour.

— THE schedule of the ROYAL CALEDONIAN HORTICULTURAL SOCIETY announces that a spring show will be held on April 5th and 6th, when prizes will be offered in 110 classes for plants, flowers, and vegetables. A silver challenge cup, value £10, will also be offered by Andrew Paul, Esq., Gilmore Place, for a collection of exotic Ferns, and several special prizes are contributed for bulbs. The International Fruit and Flower Show will take place on September 13th and 14th in the Waverley Market, Prince's Street, Edinburgh. Over £900 are offered in prizes, 175 classes being enumerated, eighty-nine being for fruits, seventy-one for plants and flowers, and fifteen for vegetables. Special prizes are also contributed by the Veitch Memorial Trustees.

— THE American "Gardener's Monthly" gives the following note, which has a rather unpromising appearance for those engaged in the CULTURE OF TOBACCO:—"After a careful investigation by disinterested scientific men the French Government has concluded that the use of tobacco interferes with the mental faculties and general ability to study, and has prohibited absolutely its use in all the Government schools. It is also said that no regular smoker ever took the highest degree in Harvard, and the authorities there are inclined to look into it."

— "It appears," observes a correspondent, "that there is considerable danger that the VARIETIES OF *GLADIOLUS* will soon become too numerous. I noticed recently in an excellent catalogue that about six hundred varieties were enumerated—quite sufficient to puzzle an intending purchaser. As far as my knowledge goes, a large proportion of these can be spared. A hundred varieties, I should think, is the outside limit that any amateur requires."

— A CORRESPONDENT writing from the OTAGO DISTRICT OF NEW ZEALAND, 30th November, 1881, observes—"This month corresponds to your May, and already our Peas are filling, and new Potatoes will be ready in a week or two. In the North Island these vegetables have been in use for several weeks. The Potato blight is unknown, and the tubers are splendid; even now they are as white as flour, and perfectly sound even when the size of bricks. Open-air flowers are on the tables all the year round."

— A DAILY contemporary gives this note respecting a STRIKE OF MARKET GARDENERS—"The ancient city of Tours is suffering just now from a failure of the supply of fresh vegetables of every kind, the gardeners around the city having agreed

to send nothing more to market until certain new taxes imposed by the municipality on their wares are removed. The defenders of these imposts point out that the taxes on produce are paid by the consumer in the increased price of the article; but on the part of the market gardeners it is contended that to raise the price is to limit the sale, by which their interests are practically damaged to the full extent of the new taxes."

— "B. K." will be glad if any of our readers can state "if it would be practicable to graft shoots of the male AUCUBA JAPONICA on to shoots of a large shrub of the female kind without cutting the latter down? and if so, what would be the best method to adopt and the right time for the operation? with any other hint that would be likely to contribute to success."

— THE Annual General Meeting of the members of the NATIONAL AURICULA (Northern Section), ROYAL NATIONAL TULIP, and NATIONAL CARNATION AND PICOTEE SOCIETIES, will be held at the "Old Bull's Head," Manchester, on Wednesday, February 1st, 1882, at 3 o'clock P.M., to arrange date of this year's exhibitions, schedule of prizes, plan of judging, and any other matter and work connected with the management of the National Florists' Societies, Northern Section.

— "DUBLINENSIS" writes—"Among new introductions CATTLEYA DOLOSA seems to be an especially robust grower either on a block of teak or on a sod of peat in shallow suspension pan. Its roots are very large in proportion to the size of the plant, and lace themselves over everything near. I also notice that the "back eyes" at the base of even leafless bulbs seem ready to start—not at all a common occurrence with these little dwarf-habited Cattleyas. All things considered, I can recommend this plant."

— WRITING from The Gardens, Bagatelle, Greenock, Mr. W. Muir observes—"As indicating the MILDNESS OF THE PRESENT SEASON, I send you two trusses of Rhododendron Nobleanum. The plants are grown in an open situation on our lawn, about 300 yards from the Clyde, and they are one mass of bloom. I also send two blooms of Liliun auratum. I have often thought that this grand Liliun could be grown with a little care to perfection during the winter, and with our trial we have been very successful." The Rhododendron heads were of good size, and very bright in colour; and the Liliun flowers were also good for the season, though not large.

— A WRITER in "The Gardener," referring to IMPORTED ORCHIDS, observes—"Anent Odontoglossum Alexandræ, I was told some time ago that well-directed attempts were being made by certain nurserymen to import and otherwise exterminate this species in South America, in order to create a monopoly, and so raise the prices at home. Of course the idea is too ridiculous to be thought of for a moment. Nothing is much more difficult than to extirpate a plant so widely distributed as is Odontoglossum Alexandræ. When plants or men make their homes in the mountains it is doubly difficult to extirpate them. As a rule, collectors take plants of a certain size only. Plants too small will not withstand the journey through the lowlands to the sea. Where ten thousand plants are collected, three times that quantity of seedlings in all stages are left behind; so that after any district is reputed to be exhausted, we have only to be patient and wait for a few years in order to find another crop ready for the collector of the future. Where trees are felled in order to collect the Orchids that grow upon them, the mortality is greater; but even if this be invariably done, it will be a long while before Odontoglossum Alexandræ ceases to exist as a wild plant on the Cordilleras, although doubtless the collecting of it in quantity may be more difficult and expensive."

— WE are desired to announce that Mr. H. R. HOLMES, late

foreman with Mr. W. Phillips, Patshull Gardens, Wolverhampton, has been appointed gardener to the Hon. C. Finch, Offchurch, Bury, Leamington.

— WE learn that the NATIONAL DAHLIA EXHIBITION, the proposal of which has been previously referred to in these columns, is to be held on the 8th and 9th of September.

— ALL Fellows of the Linnean Society will hear with regret of the death, on the 14th inst., of MR. RICHARD KIPPIST, who for nearly fifty years acted as librarian to the Society. Born in 1811, he was, when quite a lad, clerk in the office of Mr. Joseph Woods, F.L.S., architect, and an accomplished botanist. His taste for botany either originated or was acquired when under that gentleman, with whom he travelled, and afterwards assisted in the publication of "The Tourist's Flora." Mr. Woods leaving London for Lewes, Mr. Kippist, in February, 1830, entered the service of the Linnean Society, then in Soho Square. On Prof. Don's (the librarian's) death in 1842, Mr. Kippist, then an Associate of the Society, was elected by the Fellows his successor. Mr. Kippist contributed various botanical papers to the Linnean Society, which were published in their "Proceedings and Transactions," the most important of which was that on the existence of spiral cells in the seeds of Acanthaceæ. He was an original member of the Royal Microscopical Society, and an Associate of the Royal Botanical Society, Regent's Park. He retired from office in 1880, after fifty years' service, and a year or two since, when failing health no longer enabled him to discharge his duties, the graceful action of the Council in allowing their old servant to retire on full pension was generally approved of by the Fellows.—(Nature.)

THE METEOROLOGICAL SOCIETY.

THE Annual General Meeting of this Society was held on Wednesday evening, the 18th inst., at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President in the chair.

The Secretary read the report of Council for the past year, which showed the Society to be in a very flourishing condition; for while in 1871 the Society continued its work without an office, accessible library, or an Assistant Secretary, and the number of the Fellows was 314; the staff at present very fully employed consists of an Assistant Secretary and three Computers, with 555 Fellows on the roll. The receipts and expenditure in 1871 show a marked contrast to the year just passed; the receipts amounted to only £244, against more than £840 in 1881. The expenditure was only £197 against £780 in 1881. The Society also now receives second order and climatological observations from eighty-three stations; the results of which are published quarterly in the "Meteorological Record." In addition to the "Quarterly Journal," two publications have been prepared and issued under the direction of the Council, viz.—"Hints to Meteorological Observers, with Instructions for taking Observations, and Tables for their Reduction;" and "Index to the Publications of the English Meteorological Societies, 1839 to 1881."

The President (Mr. Symons) then delivered his address, which was devoted to the consideration of the present state and future prospects of meteorology. He began by asking, In what respects is our present system of observation capable of improvement? Should it be extended, either as regards distribution of stations, additional instruments, or additional hours of observation? Can any of the millions of entries at present made annually be safely dispensed with? These questions can only be properly answered after considering two others—What observations are being made? and for what object? After referring to the different patterns of barometers and the number of observations made, Mr. Symons said that he is aware there are several grounds upon which the maintenance of numbers of stations in excess of all possible requirements can be defended. In the first place, there is the constant difficulty which arises from the removals and deaths of the observers, and from the extension of buildings and growth of trees, &c. This renders it necessary that we should have two or three stations wherever we desire to make sure of a continuous record. But a far better and more scientific plan would be to choose a few unexceptionable localities remote from towns, purchase the freehold of a few surrounding acres, erect thereon stations identical in design and in every respect, and endow them with moderate funds, so that the observations may, humanly speaking, be established on an unalterable basis. That would be the way to detect secular changes. For climatic purposes the numerous climatological stations started by the Society are of great value. After speaking of hygrometers,

anemometers, and ozonometers, the President referred to daily maps of Atlantic weather, which should be on a scale of not less than an inch for one hundred miles. A compilation of such charts is essentially national work, and falls wholly within the domain of the government office. After referring to weather forecasts, the lack of original workers in discussing meteorological observations, and the absence of academical encouragement, and the little prospect of those who devote themselves to meteorology obtaining more than a bare livelihood, the President concluded as follows—"It is just possible that the severe manner in which I have criticised a few of our existing arrangements may have led someone to consider that meteorology is languishing, feeble, or even moribund. I believe that the very contrary is the fact. When a case is weak, one hesitates to point out its weaknesses for fear of a total collapse. NO. The Meteorological Society never advanced so rapidly in numbers as it has in the two last years; and if it will but apply the pruning knife to fruitless observations, and try to secure the application of more brain power to the many problems yet unsolved, it will continue to receive an ever-increasing amount of recognition and support, and to maintain that high position among kindred societies which it at present holds."

FRUITS IN 1881.

THE year 1881 will be remembered as a season when most kinds of fruits were very abundant, but the quality as a rule was much below the average of many former years. This is not confined to one kind of fruit. Grapes, Pine Apples, Pears, Plums, and Apples were generally of a very moderate character. My knowledge of this was gained at home; at the Manchester International, and other important shows; also from what I have read, and by private correspondence as well.

At the Manchester Show, which was the greatest event of 1881, fruit was considered very good, but, collectively or individually nothing of unprecedented merit was to be found. Indeed the whole gave rise to the idea that good table fruit was more the object than sensational exhibition productions, and this may be regarded as very satisfactory. Early and midseason Grapes ripened well, but late Grapes failed in many instances to gain that finish which is more desirable and requisite with them than any others. The result is that late Grapes have not kept well. The one fact pointed out most distinctly by such immaturity is that an earlier start in spring would prove of the utmost advantage to late Grapes when the summer is sunless or the autumn cold.

There is another practice which we have been proving prevents Grapes keeping well for a long time in winter, and that is growing and ripening or colouring them without much fire heat. Until the end of September, or into October if the weather be favourable, cool-grown Grapes will look well and keep well; but after that they need more fire heat to prevent decay than those grown in a reasonable temperature all through. Even with a great amount of firing it is a hard matter to preserve them in long periods of damp weather. We knew this partly before, but the latter part of 1881 thoroughly convinced us of it; and after this, although we might be able to colour our Grapes superbly without fire heat, we will apply it early, and always as a safeguard against losing so many of them through decay. So far as I have been able to see, this fact has never been stated in argument against those who advocate cool culture and a false saving of fuel, but all who are induced to try the system will find such results as those indicated condemn it more than anything else.

In speaking of fruit not keeping well, I may say that Apples and Pears did not keep well during November and December. The insufficient sun heat to mature them thoroughly was no doubt chiefly the cause of this. Probably many late Pears were blown down by the gale on October 14th, and although they might look sound at the time, their bruises became more visible as they ripened. This at least is how we lost I might almost say cartloads, and I daresay others were equally unfortunate.

No new fruits of any importance were introduced in 1881, and this is not greatly to be regretted, as in most kinds we are pretty well supplied, and unless new productions are of a very distinct and high character we are better without them. Of course time is wanted to prove and bring out qualities; but unless these are prominent to begin with, high hopes may not be fixed on ultimate results. While we say that no sterling new fruits have been given us in the past year, we may also remark that none of those previously introduced have been driven out of existence. For instance, hardly a word has been said against such Grapes as Golden Champion, Madresfield Court, and Duke of Buccleuch; but Pearson's Golden Queen has not been so fortunate, as many have spoken severely against it; but with us it has become a greater favourite in 1881 than ever; and we shall never forget seeing it at Chilwell under the guidance of our

respected friend, the late Mr. J. R. Pearson, and proving its good qualities.

Of new systems of growing fruit, nothing in special erections and very little in treatment has been advanced. Thus, in reviewing the results of the year I fear 1881 was not very eventful; but it is consoling to know that if we have taken few steps forward there has been none backward. And if we cannot notice anything remarkable, there is yet ample time to make a good beginning in 1882; and I hope we may all be able to fill many instructive pages with a review of our progress at the end of another year.—A KITCHEN GARDENER.

VINERIES AS PLANT HOUSES IN WINTER.

"WISTFUL" (page 52) may realise his vision of having Pelargoniums, Azaleas, Heliotropes, and other plants in flower during the winter if, after pruning his Vines, he will turn the rods out of doors: he may then keep the temperature of his house to any height he may require without materially affecting his Vines. The system has been practised here for several years with success. Had we, however, the convenience for growing the plants required we should not from choice utilise the vineries for the purpose, as the heat kept in the house must have a certain effect on the roots of the Vines, but by inserting a thermometer 1 foot into the border of a house so treated the temperature will be found to vary but very little from a house kept quite cool. At the present time in vineries we are forcing Strawberries, Roses, and the different varieties of plants required at this season of the year. The night temperature ranges from 50° to 60°. There are both inside and outside borders, the Vines being tied along the front of the house, and the front sashes are fitted into a groove in the side. Our first vinery was so treated in November, the Vines being kept outside until the first week in January. The house in the meantime was used for forcing. In the later houses the Vines are kept outside until early in April when the buds show signs of moving; they are then brought inside to receive the usual treatment. Bedding plants are grown underneath, and Strawberries on shelves at the back, and by well syringing in bright weather we are troubled but very little with red spider. I find the Strawberries set better on the vinery shelves than in any other house. They are then taken to the stoves for their fruit to swell. Many gardeners are no doubt similarly situated to "NOR'-EASTER," and in his words it becomes us all to make the most of the means at command.—G. SUMMERS, *Sandbeck Park*.

As an incitement to "WISTFUL" (page 52), I send the Editor some flowers from a vinery kept during the whole of the winter as a forcing house; they represent Pelargoniums, Azaleas, Heliotropes, and Roses. Unfortunately twelve hours before the Journal reaches this district all the flowers ready to gather had been cut, so that those sent are not full-grown specimens. Of the Pelargoniums, I sent a truss each of Remus and Jeanne d'Arc, both alike beautiful. Grapes were cut from the same house in August and the Vines have thoroughly ripened.

I also send a Camellia bloom. For some years back the plants have been grown throughout the winter months in a temperature of 50° to 55°, and have in no one instance behaved as "SCOTCHMAN" represents they do. With plenty of healthy roots, and well supplied with water, there is no fear of buds dropping.

I also take the opportunity to send some spikes of Lily of the Valley, home-grown like that "R. P. B." refers to in a late number. You will see there are two distinct varieties both in foliage and flower, a weakly spray with nine buds of one kind being as effective from a "market" view as one with twelve buds on the other. I find a dressing of soil and chemical manure applied to the surface of the soil after the foliage has decayed to be a great assistance to the spikes and foliage. The foliage is also better for being thinned out when it becomes thick.—A NOR'-EASTER.

[The flowers sent were in every respect highly satisfactory.—ED.]

ADVICE TO YOUNG GARDENERS.—I read with pleasure the contributions on this subject in your Journal. If gardeners, both old and young, would read more and be satisfied to attend to their home and domestic duties they would be better and happier men. Too many gardeners only wait and watch the moment they can get away from their business in order that they may join some convivial meeting of their friends, thus leaving no time for improving themselves by reading. The end of such must be poverty in old age, and for the present bad results in their garden, and children uneducated

and likely to follow the bad example of such a father.—AN OLD HORTICULTURIST.

SPRING-STRUCK PELARGONIUMS.

OUR best plants of variegated Pelargoniums for bedding-out (edgings or bands more especially) are grown from cuttings struck now. They are found to root most quickly and without any loss when each cutting is placed singly in a thumb pot. A temperature at the minimum point of 65° is most suitable, and it is advantageous to have the pots near the glass. They must not be left too long in these small pots after being rooted, but must be shifted into those 4 inches in diameter, employing a rich compost for potting. If grown thus without check, and pinched once to make them branch from the bottom, very superior plants

to those struck in autumn are secured. These have, however, use^s for which spring-struck plants are not so well adapted. The most effective combinations possible to conceive are produced by associating the older Pelargoniums with dwarf-growing plants, such as Violas and Konigas, but where the Pelargoniums are alone the younger plants are much to be preferred.—R. P. B.

PEAR DOYENNÉ D'ALENÇON.

IN the various discussions which take place on Pears this variety is seldom mentioned, yet it is without doubt a valuable late Pear. In all cold and northerly districts fine fruit can only be obtained from trees on walls, but in the south good examples are afforded by pyramids. After giving the five synonyms of Doyenné d'Alençon, the "Fruit Manual" has the following



Fig. 16.—DOYENNÉ D'ALENÇON PEAR.

relative to this Pear—"Fruit medium size, 2 $\frac{3}{4}$ inches long and 2 $\frac{1}{2}$ inches wide; oval, narrowing with an abrupt concave curve towards the eye, so as to form a sort of snout of the apex. Skin pea green or greenish yellow when ripe, thickly dotted all over with large dots, which are sometimes grey and sometimes green, not unlike the colouring of Easter Beurré. Eye small and open, with short ovate segments, which are incurved and set in a narrow depression. Stalk very short and generally stout, inserted in a small round cavity. Flesh yellowish, tender, buttery, and melting, slightly gritty at the core, but sweet, rich, and highly flavoured. A very excellent late Pear, in use from December to February, and even till March. The tree is a vigorous grower, forms handsome pyramids, and is an abundant bearer.

"This has been considered synonymous with Easter Beurré, from which it is perfectly distinct. It certainly somewhat resembles it in appearance, but the flavour is quite distinct, and it is a much superior fruit. The young shoots of Doyenné d'Alençon are quite distinct; the buds are plump, oval, and spreading, while

in Easter Beurré they are more slender, conical, and adpressed to the shoot."

PANDANUS VEITCHII.

VARIEGATION OF PLANTS.

THIS is one of the most useful of decorative plants. Though not quite so easily propagated as Pelargoniums, it is very easily increased; and it only needs heat and water enough in order to thrive. Though thus easily grown, it may be made to assume very different appearances under different modes of treatment. In strong heat and good soil it grows rapidly, and assumes a rigid aspect with little variegation. In a cool stove, in poor soil, and cramped for root room it grows more slowly, but is much better coloured and more graceful in form. But it is only when grown in a compost of peat, sphagnum, and potsherds that it attains its greatest beauty of colour and form. Those who are troubled by their plants becoming too green and stout should try

the last mode of culture. Atmospheric conditions are not without their influences, but these may be overcome by the methods recommended—i.e., good soil when the plants are delicate, poorer when they are strong, and the third system to secure grace and colour. It is well also in propagating it to choose any small cuttings, for large ones are always coarse. Cultivators must have noticed how this holds true of many variegated plants, and especially of *Cyperus alternifolius variegatus*.

Variegation or albinism is undoubtedly a disease, and is even infectious, as among *Abutilons* for instance; and when the conditions under which a plant is growing are specially favourable the plant is enabled to overcome the disease, while under the opposite conditions the disease holds its own, or even overcomes the plant. Disease generally is not desirable, but to the albinism in plants we owe much of the brightness of their foliage.

More obscure is the effect of poverty or high feeding on the stripes of French Marigolds. Cultivators of these have often been annoyed to find plants which have been producing fine striped blooms suddenly produce blooms perfectly dark, at other times pure yellow. As in the case of variegated plants, the cultivator has the power of controlling this tendency, and by the same means. Marigolds which show too much yellow and too little dark colour in their markings will change a shade or two by being mulched with manure and watered, if the season is dry or the soil poor; and the addition of liquid manure will make the change more rapid. If care be not taken, however, this may cause the yellow to disappear. Flowers that are too dark may be altered if the roots of the plants are loosened with a fork. Even changes in the weather—as from cool and moist to hot and dry, and *vice versa*, will totally change the character of a bed or row. To some it may be information to know that we hold a remedy.—S. H.

REVIEW OF BOOK.

The Rosarian's Year Book. 1882. Edited by the Rev. H. H. D'OMBRAIN. London: Bemrose & Son.

IN the "Year Book" now before us we have, as a frontispiece, a photographic portrait of the Hon. and Rev. J. T. Boscawen, Vice-President of the National Rose Society, a gentleman well known in horticultural circles as one of the most enthusiastic as he is one of the most skilful of gardeners. Not only does he know plants well, but he also knows how to grow them, and that is more than can be said of all "plantmen." The Editor, therefore, made a good choice in selecting Mr. Boscawen's portrait to adorn his annual.

The articles which compose this year's issue are of the usual style of Rose literature, and are well and practically written, but they generally do not differ materially from what are to be found in the current horticultural periodicals. "The Enemies of the Rose and their Injurious Consequences," by Mr. G. Baker, is an exception, however, and is the best and most exhaustive paper on the subject we have seen. The same remark is applicable to Mr. C. H. Hawtreys humorous and graphic description of "Our Flower Show," which we cannot resist extracting.

OUR FLOWER SHOW.

Everybody agreed that we must have a flower show at Crawford. There was one at Eversford, and another at Walesdon, besides the big one at Cartham. There was no doubt we should be wretchedly behind the times if we did not hold one. Boffer thought so. And James Greybridge declared at once that he should get the thing up himself, if no else did. My heart always sinks when I hear Greybridge speak like that. I know so well what I am in for.

Well, we had a meeting, and resolved ourselves into a Committee. "That showed plenty of resolution on our part," I observed: but nobody laughed, and Greybridge begged that I would not try to turn everything into ridicule. Thereupon the whole Committee looked pained; whilst Greybridge, who is always making the most idiotic jokes—really idiotic ones—regarded me with self-complacent displeasure.

Major Milman was elected President—"I don't understand this sort of thing myself, don't you know; but if you really want me to be President, I'll do my best. You must explain to me what I've got to do, don't you see, and then I'll try and do it."

Fortunately, we had on our Committee a nurseryman who knew what a show ought to be: or I tremble to think what an exhibition we should have made, not so much of flowers, as of ourselves. Greybridge was made the Secretary—why, goodness knows! But he evidently expected it, and people always let him have his way. None appeared anxious for the post of Treasurer, as Greybridge at once let it be understood that it was not the Secretary's duty to canvas for subscriptions. I instinctively knew what was coming, and devoutly wished I could make my nose bleed, as I used to do sometimes at Eton, when I didn't know my lesson and felt pretty sure that I should be called up to construe. "Treasurer," cried James; "why

there you are at once! Briggs is the very man for it! Local Secretary to the Rose Society! Awful fellow to dun you for subscriptions! By Jove! he actually gets one out of me!" Roars of laughter followed this remark, and, in spite of my expostulations, I was elected Treasurer by acclamation.

The drawing-up of the schedule was left to a Sub-Committee of three, of whom it is needless to say Mr. Stevens the nurseryman was one. The most glowing account of the New Horticultural Society was concocted by the Secretary, and published in every conceivable form. I will not harrow the reader's soul with any account of what I went through in collecting the subscriptions. I *did* collect them, though my wife never ceased to tell me that she could not imagine why I was such an idiot as to take all this trouble for a stupid flower show.

James Greybridge had kindly enough given permission for the Show to be held in his park. He only made one stipulation. There must be a scythe race. "Put it down in the bill of fare," said he to me, as I was correcting the proof of the schedule. (By the way, I always fancied that this was the Secretary's work, but somehow the proof was sent to me for correction). I had never heard of a scythe race, much less seen one. "Never seen a scythe race," cries James; "why, where have you been all your life?" From Greybridge's manner one would suppose that scythe races were to be witnessed daily on the high roads.

"Well, just explain what you really mean by a scythe race."

"Oh," says Greybridge, "you have a plot of ground which wants mowing. Divide it into so many strips, and let each fellow mow his strip as quickly and neatly as he can. Capital fun! Oh, you know, we must have a scythe race."

So we gave in on this point, and allowed the scythe race; but we were firm when James wanted to have a *consolation race* (!) for all those who had not won a prize at a show. "We might have a regular good handicap," he said, "two hundred yards, you know; or, we might divide them into flowers, fruit, and vegetables! What a chance for the Scarlet Runners! they'd go like Beans, eh! Oh, I think it's a pity! It would have been the success of the Show!" However, we were obdurate on this point. For once in his life Greybridge did not have his own way.

As the Show was to take place in his own park, Greybridge had undertaken to make all the arrangements. "Some little trouble perhaps," said he; "but that's nothing to me. I shall enjoy it. All that you fellows have got to do is to mind your gardens, and grow something fit to show! Leave the rest to me! I'll see you through!"

Mr. Smithers, our vicar, who was on the Committee, was delighted to think that the matter was in such good hands. "Capital fellow, Greybridge, isn't he?" said he to me; "I wonder what we should do without him." I am afraid I did not respond with much enthusiasm, for I own I felt a qualm or two about James. You see I knew him so well.

About a fortnight or three weeks before the date fixed for the Show I received a hurried letter from our valued Secretary. "Very sorry, but he was obliged to go away unexpectedly—going down to Murchison's, in fact, for a week's cricket, and would, probably, be expected to stay there for ten days or so after, as they were getting up theatricals. Of course quite impossible to refuse Murchison. Would I just see to the arrangements for the Show? I shouldn't find much to do, as he had given things a good start. He would be sure to turn up in time for the Show itself, as he shouldn't like to miss the scythe race. Trentham, the butler, and the other pampered menials would assist me." Then he hoped I was all right "up to now:" that he, for his part, would be "all there when the bell rang," &c., &c. Then he wandered off into a jungle of slang, no doubt with the idea of making good his retreat, finishing up with "your obedient servant to command, J. G."

My obedient servant! I wish he was! I'd command him.

I felt sick at heart. I didn't dare tell Mrs. Briggs. But she caught sight of Greybridge's handwriting, and a glance at my face told her the rest. I'm afraid I'm not a good actor.

"You old goose, Jack, how can you be so easy-going? Mr. Greybridge makes a regular slave of you. Tell him that you'll have nothing to do with the stupid thing."

No: for our own reputation we must carry the Show through. So I sent a line to Mr. Smithers, enclosing James' epistle, and asking him to help me. In half an hour I had his answer—"of course he would, with pleasure; would I come and lunch, and we might make a start at once." I was not surprised to find that Greybridge had done next to nothing. With only a fortnight before us the task seemed almost too great.

The first thing to do was to choose our ground. We went all over the park to find the likeliest place, as a good deal of the success of a Show such as ours depends on its being in a pretty, and above all things a get-at-able spot. After a good inspection of the best localities, we determined to have it just outside the lawn-tennis ground and flower garden, which was divided from the rough park by a neat iron railing. This was approved by Trentham as being so convenient for the carriages, albeit Smart—though otherwise acknowledging the advantages of the place—was "afraid of its being a bit swenky if we had any wet."

To describe all we got through in that fearful fortnight is beyond my strength. I am not equal to it. Perhaps this is as well; for I doubt if the narrative would be very entertaining to read.

Inspiring music, of course, was an absolute necessity. So we had engaged the band of the Third Battalion of Her Royal Highness Princess Victoria's own Light Infantry (The Marlshire Regiment)—well, *really*, you know, it was our Volunteer Brass Band—but that's what they call it now. The day before the Show had arrived—and, after all, things were beginning to look hopeful—we had a capital lot of entries, and, in addition, Mr. Stevens, the nurseryman, had promised to help us with a display of plants staged for effect. Mr. Smithers and I went down in the afternoon to superintend the putting-up of the two large marquees which we had hired. We found Smart, with three or four assistants—"lads," as he called them—all ready on the ground. Smart is a first-rate fellow, and as hard-working a man as one would meet with in the proverbial day's march, but I don't think he had ever put up a tent in his life. True, there was a fresh breeze blowing which was all against a novice: still there was none else who knew anything about it, so the whole directing of the work fell on Smart's shoulders. I am bound to add that for some considerable time the marquees kept on doing the same thing. Smart emerged from their folds looking hot and anxious, but as resolute as ever. I gave him great credit for keeping his temper as he did. For his "lads," too, were stupid, and trying; especially an old wizened one of about seventy. The wizened one was perpetually getting entangled in the ropes, and it required our whole available force to extricate him. Eventually he was told off to keep watch over the mallet and pegs.

Meanwhile Trentham, the butler, appeared on the scene, accompanied by a companion who was coachman to our neighbour, Mr. Hawkins, or, as he always preferred to style himself, Mr. Whiner 'Awkins' coachman. Trentham and his friend eyed Smart's work with a critical air, until, after superhuman efforts (in the course of which the wizened one was knocked down and nearly brought to a timely end) both the marquees were at last triumphantly erected. Then it was that 'Awkins' coachman informed me that he had stepped down to see if he could be of any use with the marky. When he was with General Murchison "im as used to live over by Winkley, you knows who I mean, sir," he always used to help to put up the large tent for the cricketing matches. Telling Mr. Whiner that I might be glad of his assistance when we put up the tents again this time next year, I set to work with Mr. Smithers and Smart to allot the space at our disposal for the various classes.

A beautiful bright morning. Well, the weather was not going to be against us: that was a great thing. Mr. Stevens was on the ground early, at my request, to direct everything, and the Vicar and I were at hand to see that his orders were carried out.

The exhibitors, large and small, arrived with their treasures, and after a hard morning's work we got them all ship-shape, and a very respectable Show it was. All was ready for Mr. D'Ombraim, who had come to judge for us, when our energetic and much-valued Secretary, James Greybridge, appeared on the scene. He was in boisterous spirits as usual. "Well," he said, slapping me on the back, "how about the scythe race? Large entries, eh?"

"Six have entered for it," said I, "including yourself."

"Only six," he cried. "Good heavens! why I ordered twenty new scythes from Goodall's last week! You can't have worked it at all? Did you have any posters up?"

"We had posters for the whole Show, of course," I reply rather testily; but we are not going to make ourselves ridiculous by advertising the scythe race only."

"Well, you can't have taken much trouble with the thing, you know. My dear fellah, there ought to have been posters up everywhere. It's been badly managed," he muttered to himself.

"Then why on earth didn't you do the thing yourself?" I retort.

"Me!" answered James, with a reproachful air. "Me! Why, how could I find the time? I did my best for you, but you know how awfully busy I've been. When I entrusted the thing to you, I certainly did think that I was leaving it to someone who took a real interest in it, and who would do his best to make it a success." And he turned sadly away.

Poor James! I am sorry that he should be disappointed; but it is impossible to make him understand that the scythe race is not the most important part of the Show.

I wish I could worthily describe the excitement, delight and disgust of the various competitors as they rushed into the tents, after the judging, to see how they had fared.

I just went to have a peep at my Roses, and passed by Greybridge, who was gazing at two enormous Beetroots, exhibited by Mr. Smithers.

"Look here," I heard him cry out. "What's the good of you fellows trying for prizes? You can't beat the Vicar."

I call such fooling simply childish; but the whole tent was convulsed with laughter at this joke (!), and people kept pouring in and surging up towards us to find out what it was.

Presently the volunteer band marched on to the ground playing that march which they have made so peculiarly their own. They always play that march wherever they go. We all knew that they would play it as they marched on to the ground, and we all know that they will march off to the same inspiring air. If the truth were known, Crawford and the neighbouring district would be disappointed if they did not play it. Everyone would feel as if something was wanting.

In the afternoon the scythe race came off, amidst shrieks of

laughter. Greybridge, in haymaker costume, with an enormous straw hat on his head, looked very business-like, until the race began. When it did, I soon perceived that he was about as good a mower as he was Secretary to a Horticultural Society. The race was won, to my infinite amusement, by an old man with a wooden leg, who, partly seated on a small camp-stool, got over the ground at a most astonishing pace. He was, evidently, the popular favourite, and was greeted with loud applause as he went on and left Greybridge and the other competitors toiling hopelessly in the rear.

Two of my brothers, who happened to be at home, have come over from Deepdale to see the Show. They are not horticultural in their tastes, and I can see that they regard me with a sort of contemptuous pity.

"I suppose this is what you call a great success?" asks brother Charles. The tone of his voice implies that in his opinion the fact is not self-evident.

"My dear old chap," says brother William, "you must take more care of yourself. The excitement of this sort of thing" (here he gives a tremendous yawn) "can't be good for you. I've just walked through the tents, and I feel so much excited myself" (another yawn) "that I think I shall go home at once and lie down for an hour."

"It's getting very cold," observes my wife (she always feels cold at a flower show, I find): "How much longer have we got to stay?"

My enthusiasm in the cause of horticulture has not, I fear, communicated itself to the other members of the Briggs family; but their patience will not be tried much longer, for Major Milman, the President of the Society, is just going to make his speech, and then the prizes are to be distributed. After that we may go home.

The Major is not a good speaker, and none is more distinctly aware of the fact than the Major himself. With infinite pains he had prepared a speech for the occasion, the greater part of which he, of course, forgot when he had to speak it. As far as I could judge, his audience would not have been sorry if he had forgotten a little more of it. Suddenly, however, he waxed eloquent, or as near eloquent as he found practicable. "A—a—a—Before I conclude—a—a—you will all, I conclude, agree with me—that we ought to express our gratitude—our deep sense of gratitude—a—a—to a gentleman who has taken a great deal of trouble for us, if you know what I mean—a—a—and has contributed in no small degree to what I may call the success of the Show." (I was utterly taken aback: there is nothing I dislike more than becoming, suddenly, the object of universal attention.) "A—a—we all know how this gentleman has worked—a—a—I may say toiled for the benefit of the Society." (What *should* I say in reply? Really, it is most awkward to be called on to speak in public, when one is quite unprepared.) "His heart is in the right place—a—a—in fact, it is quite in the right place; without him a—a—I'm sure we never should have been able to hold a Show at all." (Of course, it is pleasant to find one's work appreciated; but the Major might have given me a hint. Upon my word, I'd give a good deal to be able to escape.) "And so I'll ask you all to give three cheers—a—a—three hearty cheers—a—a—for our worthy-worthy-Secretary, Mr. James Greybridge. Hip! Hip! Hip! Hurrah!!"

Did I cheer? well, no; I don't think I did. Not very loud. I hadn't got it in me. But if I didn't, everyone else did; and then James, with the utmost impudence, returned thanks in a neat little speech, while Mr. D'Ombraim beamed on him approvingly. After the prizes had been distributed, and the crowd had dispersed, Mr. D'Ombraim, as he was shaking hands with James, said, "By-the-bye, Mr. Greybridge, will you write something for me for the 'Rosarian's Year-Book'?"

"Oh, with pleasure," said James briskly. "Nothing I should like better. What shall it be? I know. I'll write you an account of 'Our Flower Show.'"

"Capital," cries Mr. D'Ombraim. "Well, good-bye! I'm very glad to have seen your Show. It's been a great success. Good-bye, Mr. Briggs."

I shook hands with him, and bade him good-bye. But I felt flat and a good deal discouraged. And if anything could have added to my wretchedness it was to hear Greybridge gaily pledge himself to write that article.

Two or three months passed by, and I had recovered my wonted spirits. It was only now and then that the recollection of the Flower Show came upon me like a bad dream. One day I had a visit from Greybridge. "My dear fellow," he said, very seriously, "I've had an invitation to go down to Murchison's for the shooting. Can't refuse Murchison, you know. You don't mind writing that paper about the Flower Show for me, do you?"

"Impossible," I said.

"Not to you," he answered; "not to you. The fact is, I've written to Mr. D'Ombraim to say that you would do it. I should have been delighted, you know, to have done it myself, if I had had time; but you see what a fix I'm in."

"I'm afraid I can't help you," I said.

"I say, Briggs, old chap, don't be so hard on a fellah. You'll do it ever so much better than I could; besides, you know so much more about the Show than I do. Thanks, awfully. It has to be sent in this day week."

He was gone! I never knew how he got out of the room, but he did somehow. Of course I could not get the paper ready in time, though I worked like a slave at it.

Poor Mr. D'Ombra is becoming desperate, and at last writes: "Would Policeman X be of any service?" Possibly, I think, if he would but seize James Greybridge, and carry him off to Mr. D'Ombra for summary and condign punishment. But there, the paper is done at last.

Well, at all events, I have one consolation. I have shown up that impostor James, and have been able to write something like a true account of "Our Flower Show."

Another admirable article by the Secretary, Mr. Edward Mawley, on "The Weather of the Past Rose Year," will be found profitable reading; and we commend the Annual to our readers as an instructive shillingsworth.



HARDY FRUIT GARDEN.

STANDARD Apple, Cherry, Pear, Damson, and other Plum trees in orchard and fruit gardens succeed best as a rule when not subjected to any formal system of training or pruning. It is, nevertheless, necessary to examine them annually, thinning the branches where too crowded in young trees, and shortening long shoots, which by taking the lead are likely to cause irregular heads. Old trees should also have any superfluous branches removed, and where they have grown so as to have become a perfect thicket, a moderate thinning will be of advantage to improve the quality of the fruit. Old trees, however, require careful treatment, as if the thinning be severe it will cause a quantity of spray to be produced, and this will have a tendency to lessen the crop considerably for a time. When the young wood is allowed to displace the old very much finer fruit will be produced than on old weak spurs.

Trees which are of good size and age, and from some cause do not afford satisfactory crops or are inferior varieties, may now be cut down, and in spring be grafted with approved varieties, especially those found to succeed in the locality. If the stems and branches of orchard trees be infested with moss or lichen this should be scraped off carefully, the stems and branches being washed with strong brine, or with lime and water of the consistence of ordinary paint, with an admixture of soot to darken the limewash. Moss and lichen are often a consequence of the trees having their roots in a cold wet soil, the water not necessarily near the surface, but stagnant in the subsoil. In such a case drains 18 to 21 feet apart with proper fall and outlet, and at sufficient depth as to prevent water accumulating nearer than 3 feet from the surface, will be of far greater benefit than any dressing applied to the surface of the ground. In forming fresh plantations of fruit trees draining should be the first consideration, and after that the preparation of the ground by trenching as deeply as the good soil admits, whilst that of an unfavourable description should only be loosened. Old orchards in grass frequently have all cut grass removed for fodder, and no manure returned to it. In this case a good dressing of manure would be beneficial; or if the ground be overgrown with moss a compost would be preferable, one part in six being lime, and a twelfth of wood ashes, applying at the rate of twenty loads per acre. In the case of trees showing much enfeeblement yet still fruiting well, though the fruit is inferior in size, it would be desirable to not only give a good dressing of manure, but to have the turf turned under, paring it off near the trees, and pointing in a dressing of manure or compost, being careful not to disturb the roots much.

The weather has been so mild during the present and preceding months that the flower buds of Apricot trees against walls have almost expanded—in fact, are showing colour, so that any arrears of pruning or nailing the trees must be completed with dispatch; and should the present mild weather continue, the protecting material ought to be ready, so that prompt application after the flowers expand may be secured if necessary. Peaches and Nectarines, though not so forward as the Apricots, have their buds swelling, and the pruning

and dressing should be completed without delay. Other fruit trees against walls are also forward and require similar treatment.

FRUIT HOUSES.

Vines.—The earliest Vines in pots, having set their fruits, should be attended to in thinning, removing only the small berries, endeavouring to secure a compact bunch rather than one of large berries which from looseness does not retain its form. Allow a moderate extension of the laterals, which by inducing root-action will, providing the soil is surfaced with rich compost, and liquid manure duly supplied, assist the berries in swelling to a good size. If the roots extend into the fermenting bed tepid liquid manure poured over it between the pots will also be beneficial. If there be any trace of red spider a few forcible syringings with clear rain water will dislodge it; otherwise syringing will not be necessary, but the floors and walls should be sprinkled in the morning and afternoon, and again in the evening when the weather renders sharp firing necessary. Maintain the night temperature at 65°, falling to 60° on cold mornings, turning on the heat early so as to have the temperature up to 70° by 8.30 A.M., keeping between that and 75° when the weather does not necessitate ventilation; but if the day is likely to be fine ventilate a little at 70°, and increase it proportionately with the advancing heat, closing early in the afternoon at 80°.

The earliest-started Vines planted out will shortly be in flower, and will need a temperature of 65° to 70° at night and 70° to 75° by day, securing if possible a change of air daily, and keep the atmosphere a little drier. After the Vines come into flower the rods may be shaken every forenoon in sunny weather and ventilate the house, or examine the bunches and disperse the pollen with a large camel's-hair brush or plume of Pampas Grass. Any shy-setting varieties should be fertilised with pollen taken from Black Hamburgs. The laterals may be allowed to extend during the flowering period providing there is room; otherwise do not allow growths to be made which must afterwards be removed in quantity, as this is likely to induce shanking. The Vines started in early December are advanced in leaf, and need a temperature of 60° to 65° at night and 70° in the daytime, with an advance from sun heat to 75° or 80°. Until the flowers expand the Vines may be syringed in the morning and at closing time, but it must be practised early enough in the afternoon so as to allow the foliage to become dry before night. Complete disbudding, and avoid having the shoots too closely placed; a distance of not less than 18 inches should be allowed between each. If fermenting materials have been placed in the house they must still be turned and fresh added as the heat decreases; but where these have not been employed the borders may be damped in the afternoon with clear guano water, 1 lb. to about fifteen gallons of rain water, and the evaporation troughs charged with the same. Where fermenting materials are used on outside borders they must not be allowed to become cold, but have the parts most decayed removed, mixing some fresh with that retained, so as to maintain a good heat. The inside borders may be supplied as necessary with rain water or liquid manure at a temperature slightly above that of the mean of the house.

The Vines started early in the month are growing, necessitating raising the temperature to 55° in severe and 60° at night in mild weather, keeping at 60° to 65° in the daytime by artificial means, and 70° to 75° by sun heat, with ventilation on all favourable occasions. Disbud as soon as the best bunches are discernible; and whilst overcrowding is to be avoided, it is always advisable to retain more growths than those to carry fruit, so as to maintain a good supply of nutrition to the fruit.

Vines which are to be started early in next month now require the house closed, but employ fire heat only to exclude frost. The inside border may receive a good soaking with water at 80° to 90°, repeating if needful to render the soil thoroughly moist, the outside border being covered with litter to prevent chill from cold rains or snow. Late Black Hamburgs are now cleared of their fruit, also Muscat of Alexandria; no time should therefore be lost in having the Vines pruned, and dressed if needful with an insecticide, the house thoroughly cleansed and if necessary painted, scraping off the loose surface soil down to the roots, and applying fresh loam to which

has been added about a twenty-fifth part of bone meal and a similar proportion of wood ashes. The houses of Hamburgs must be kept as cool as possible, frost being excluded and the Vines allowed to start naturally, the Muscats being also kept cool until the time arrives for starting them, which should not be later than the middle of March. Thick-skinned Grapes which it is desirable to keep in good condition until the new Grapes come in will be much better cut from the Vines and bottled, as this will allow the Vines to be pruned and dressed, so as to be in readiness for a fresh start and to allow a few weeks' complete rest. In pruning at this season it is advisable to dress the cuts with styptic or patent knotting. Late Grapes are as a rule keeping indifferently, and should be examined frequently, removing all decayed berries.

Figs.—The earliest crop of Figs being obtained from trees in pots plunged in beds of fermenting materials, care should be taken not to allow the heat at the roots to exceed 75°. The pots may be placed on pedestals of brickwork to prevent their sinking with the fermenting materials, and also to prevent disturbing the roots which have found their way into the bed. It will be necessary to add to the fermenting materials from time to time, so as to maintain the heat about the pots at from 70° to 75°. It is important in Fig culture that the trees be in a light position and not much crowded. It is also important that the trees be not subjected to hasty treatment, too much heat and too much humidity being fatal to a sturdy habit. Give weak guano or liquid manure abundantly, and ventilate freely when circumstances permit. If the trees were started early in December the shoots will need stopping at the fifth growth leaf, but any short stubby growth should be retained entire. The night temperature must still be maintained at 55°, and 60° to 65° by day artificially, with an advance from sun heat to 75° or 80°, commencing to ventilate at 65°. Syringe twice daily, but in dull weather damping the borders and paths will be preferable to syringing the trees. Those permanently planted out started early in the month must not be brought forward too rapidly, the night temperature being kept at 50° to 55°, and 60° to 65° in the daytime, ventilating at 60°, and with free ventilation an advance may be allowed to 70° or 75° from sun heat. Syringe twice a day if the weather be favourable.

Cherry House.—Until the present time the temperature has been such as to render little artificial heat necessary, hence attention has been needed in that way, but seldom so as to maintain a temperature of 40° at night and 45° to 50° in the daytime, ventilating at and above 50° freely. This treatment should still be continued, also attending to the requirements of trees in pots, and syringing when necessary.

Melons.—As the plants at present are only showing the second leaf little can be done, but keep up a brisk heat of 70° to 75° artificially, with an advance of 5° to 10° by day and a decline of 5° at night, and have them near the glass so as to secure short-jointed plants. Do not pot the plants until they are well rooted; indeed we prefer to earth the stems up a little and to transfer them to 5-inch pots, from which they are turned out into the ridges or hillocks. As the plants advance in growth a small stick can be placed to each and the shoot loosely secured to it, removing all side growths as they show until sufficient length of stem is secured to reach from the surface of the bed to the trellis; above that the side or lateral growths should be only reserved, as to retain all of them would crowd the plants too much. Plants intended to trail over the surface of the bed will need the central point pinched out at the second rough leaf.

Cucumbers.—Former instructions in respect to temperature remain in force, the season so far being unusually favourable for winter Cucumbers. The supply of moisture both at the roots and in the atmosphere must be governed by the outside atmosphere, it being impossible to give any fixed rule as to the quantity and time to apply it at this season of the year. Care should, however, be taken not to have too much moisture in the atmosphere, especially in dull weather. Where hot-water pipes are near to the roots be careful the soil does not become too dry. Encourage the roots to extend over the surface of the bed, nothing accelerating this more than adding a little fresh soil or loam from time to time, with which has been incorporated some well-decomposed manure. If aphides appear fumigate

on two or three consecutive evenings moderately, as one severe dose may do irreparable mischief. Pot seedlings and sow seed for succession. Prepare beds of fermenting materials for seeds of Cucumbers and Melons to raise plants for dung-heated pits and frames.

PLANT HOUSES.

Camellias.—The plants flowered earliest—i.e., such as were started flower during the autumn and early winter, are now growing, and should be at once transferred to larger pots if necessary, for if not potted until growth has commenced the season's growth is considerably injured. In potting only moderate shifts should be given, and the new soil must be rammed quite as firm as the old ball. Provide good drainage, as the plants require plentiful supplies of water. A temperature of 50° to 55° will be needed to encourage free growth, with an advance of 10° to 15° from sun heat, maintaining a moist atmosphere, and when the sun becomes powerful shade with some light material. The general collection is now flowering or advancing and should not lack water, assisting weakly plants with liquid manure. A temperature of 50° will enable the flowers to expand well, with free ventilation to prevent moisture being condensed on them during the night or in dull weather. Sometimes those planted out are allowed to become too crowded, in which case cut every alternate plant in, and after making a season's growth they may be taken up and potted or placed in tubs. They will make handsome specimens. Thoroughly cleanse the plants before they begin growing.

Azaleas.—The leaves which are annually shed are now nearly all down, and the plants will be much improved in appearance by being hand-picked, removing all that have turned yellow. Healthy plants well ripened in autumn have developed growth round the base of the flower buds, which will not in any way interfere with the flowering, but is an indication of good health; only if the buds were not well matured in autumn they will not develop, nor would they were not young growth to push from the base. As the buds swell or young growth is produced they will require a little more water at the roots. Plants for late flowering should at once be placed in a house with a north aspect, keeping it as cool as is consistent with safety. Young plants desired to be grown on quickly must be placed in heat so as to afford as long a season of growth as possible, by which means they will make double the progress of those permitted to start with the general stock.



SECTIONS.

Now that the superiority of sectional supers is almost generally admitted, and the variety of styles and sizes now in the market is so great as to be perplexing to those about to adopt them, a few remarks from one who has used them now for six seasons may not be out of place. All sections, properly so called, are frames about 2 inches wide, each intended to hold a single comb. They are now turned out so cheaply by the Americans that no one in this country need attempt to make them by hand labour at anything like their cost as imported. The following are the principal styles now in use.

1, The original style of section invented by Mr. John Stewart, Arbroath, had the top bar as well as the two ends 2 inches wide, the bottom bar 1½ inch, and was a long section holding from 3 to 4 lbs. The adoption by myself of a glass bottom bar made this section so handsome when filled with honeycomb that I and many others continue to use it to some extent.

2, The so-called prize section, for which Messrs. Betsinger and Doolittle were awarded the Thurber gold medal, value 50 dols., at New York in October, 1877, was practically the same as that used by myself months before that date, and the parent of the style now generally adopted. It was at first a nailed section, then the corners were dovetailed. In this section the top and bottom bars are each a quarter of an inch narrower than the sides, thus allowing a bee passage the whole length of the section, and at the same time a space for the glass used to protect the comb from dust, damp, or vermin when completed.

3, The all-in-one-piece section, in which the general features of the prize section are retained, is now very generally used. But

it has three great disadvantages, as proved by its use in two seasons. These result from its having the bee passage only in part of its length. No doubt this is a hindrance to the bees as well as a source of much trouble to the bee-keeper, who has to handle the sections while the bees are at work in them. The close-fitting parts are terrible bee-crushers. And, lastly, there is no provision for glazing tightly, which I consider very desirable in this country of shows, and in a humid atmosphere which soon spoils the look of honeycomb not hermetically sealed. A minor disadvantage with Root's square joint section is the difficulty some find in turning the proper corners, and thus having all square. I have also used the Lewis section with V-shaped joint, but cannot get the finished section true to square.

My experience thus leads me to advocate No. 2 of above, and I have just ordered my supply for the season with directions to dovetail all the corners and to have the wood rather thicker than ordinary, so that the joints may have more holding power and permit their being also nailed if necessary.

But if styles vary so do sizes, and herein also lies a source of trouble. At a single exhibition last season I saw no fewer than six different sized sections. The 1 lb. sections alone were of uniform size—viz., $4\frac{1}{4}$ inch by $4\frac{1}{4}$ inch, and this will continue to be a standard. But the $1\frac{1}{2}$ and 2 lbs. sections were of various dimensions. No doubt there will be as much difficulty in fixing a standard size in sections over 1 lb. as there is in fixing a standard for bar-frames. It might have been done a year or two ago, but now bee-keepers have each provided themselves with trays, separators, and perhaps glass to fit the sizes they first chanced to get, and are loth to abandon them. Beginners, however, should make up their minds on the sizes they intend to use year by year, and insist on dealers keeping a stock of the sizes they have supplied. My own practice has been as follows—I adopt the 1 lb. size as a standard that does not alter, and is, besides, convenient for use in the body of the Woodbury hive, six of these sections being fitted into a wide frame, which is either used in the breeding department or in a top storey. As the frame I use measures inside 13 inches by $8\frac{1}{2}$ inches, I have also adopted for $1\frac{1}{2}$ lb. a section measuring $6\frac{1}{2}$ inches by $4\frac{1}{4}$ inches, four of which fill the frame. Of course either or both of these may be used as supers proper, and in that case they have another special advantage—the cheapness of the tin separators they require. The stock size in tin sheets is 20 inches by 14 inches, and one of these sheets makes exactly six separators for a tray of sections holding three 1 lb., or two $1\frac{1}{2}$ lb. in each row.

As I consider two sizes of sections quite enough in an apiary I am resolved to stand by the above, and a consideration of my reasons may be helpful in guiding others to decide before working into a whole set of apparatus that may have to be discarded whenever it is found impossible to get a renewed supply of the sections formerly used.—WILLIAM RAITT, *Blairgowrie*.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE first quarterly meeting of the present year was held in the lecture-room at Exeter Hall, Strand, on Wednesday last. There were present—Mr. T. W. Cowan (in the chair), Rev. G. Raynor, Rev. E. Bartrum, Mr. J. M. Hooker, Mr. H. Jonas, Mr. D. Stewart, W. and B. Glennie (Treasurer), and Rev. H. R. Peel (Hon. Sec.). There were also present Hon. and Rev. H. Bligh, Rev. A. Roberts, Mr. G. N. Martin, Rev. E. Burkitt, Mr. Jesse Garratt, Capt. Campbell, and Mr. W. S. Darby—representatives of the Berks and Bucks, Kent, Herts, Wilts, and Surrey County Associations. Reports were read from Mr. S. J. Baldwin respecting the honey market, and from Mr. Henderson relating to the library. The Committee discussed at great length the propositions made by the Hon. and Rev. H. Bligh for the promotion of cottage apiaries. Ultimately it was resolved that a Sub-Committee be appointed, consisting of the Chairman, Rev. G. Raynor, and the Hon. Secretary, to confer with Mr. Bligh for the purpose of revising the rules for this competition.

The Hon. Secretary suggested that a certain sum of money should be voted each year for the purpose of assisting the development of county associations by means of lecturing tours. It was resolved that the Committee do recommend that the sum of £30 be voted for this purpose.

A conversazione was held at six o'clock, when the Rev. G. Raynor read a paper on "Bee Hives and Houses." The subject was dealt with in a most comprehensive manner by Mr. Raynor, and much discussion ensued upon the subject of the paper. There was a good attendance of members.

ASPECT FOR HIVES.

IN the useful little manual on bee-keeping written by the late J. H. Payne, Esq., and published by the Journal office, it is stated that a certain gardener had for ten years his hives facing the

north, thereby preserving them better through the winter, obtaining earlier swarms and more honey than his neighbours. Now as the end obtained in that case by such means seems to me to be the main object in view, the subject should be one of very great importance. It is usual, as far as I have seen, to arrange the hives to face them south, but the north has most likely been tested by many of your bee-keeping readers, some of whom, I trust, will kindly give the result of their experience to a beginner who is anxious to succeed.—E. T.

TRADE CATALOGUES RECEIVED.

Harrison & Sons, Leicester.—*Catalogue of Flower and Vegetable Seeds (Illustrated)*.

Kelway & Son, Langport, Somerset.—*Seed Manual for 1882 (Illustrated)*.

W. Wells, Earlswood, Redhill.—*List of Vegetable and Flower Seeds*.

C. Fidler, Reading.—*Catalogue of Potatoes*.

H. Cannell & Sons, Swanley, Kent.—*Floral Guide for 1882 (Illustrated)*.

William Rumsey, Waltham Cross.—*Catalogue of Flower and Vegetable Seeds*.

Brinkworth & Sons, Reading.—*Catalogue of Vegetable Seeds (Illustrated)*.

E. G. Henderson & Son, Maida Vale, Edgware Road.—*Catalogue of Flower and Vegetable Seeds (Illustrated)*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (J. F.).—We do not know a work exclusively devoted to the subject you name, but much general information of that character and many instructive facts are contained in Mr. F. W. Burbidge's work, "The Propagation and Improvement of Cultivated Plants," published by W. Blackwood & Sons.

Single Tuberous Begonias for Bedding (A. H. B.).—If you want the cheapest plants, some of the unnamed seedlings would suit your purpose very well, and if you send to a nurseryman who makes a speciality of such plants he would no doubt supply what you require at a moderate price.

Articles on Orchard House (J. E.).—You will find articles upon this subject, chiefly by the writer you name, in the following numbers of this Journal—No. 450, November 11th, 1869; No. 498, October 13th, 1870; and No. 552, October 26th, 1872. The first and the last named are in print, and can be had from this office, post free, 3½d. each.

Making Cheap Wines (A. J. S.).—Recipes for a large number of wines with particulars of the modes of preparation adopted are given in the "Gardener's Year Book" for 1880. A copy can be obtained from the publisher at this office for 1s., post free 1s. 2d.

Astelma eximium (G. D.).—You could no doubt obtain seed from any nurseryman at the Cape of Good Hope, whence the supply of dried flowerheads is obtained for the London markets. We understand the plant is in cultivation in some private establishments, but it is very scarce, though introduced to this country nearly a century ago. The heads certainly have, as you suggest, some resemblance to Raspberries, and, like many other so-called popular names, the one it bears is not perhaps the most expressive.

Nymphæa Lotus (J. H.).—The roots should be potted in a compost of turfy loam, a little well-decomposed manure, and abundance of sand, plunging the pots when it is desired to start the plants into growth into a tank of warm water, if possible above a temperature of 60°, indeed 10° or 15° higher is an advantage to start them, though during the summer when the foliage is well advanced a lower temperature will suit them. The pots should remain in the water when the plants are resting, but a temperature of 50° or a few degrees less will be sufficient then.

Late Hyacinths (J. B.).—You cannot preserve the bulbs for use next season. The only chance of doing so is by planting them at once in sandy soil. Several of them will probably refuse to grow, and those which do not fail will be of very poor quality indeed for potting in the autumn, and, in fact, will not be fit for forcing. Nurserymen do not attempt to preserve any surplus Hyacinths for forcing another year. Some firms send a few bulbs to hospitals and infirmaries towards the end of the season, which is far better than wasting them. We doubt if you can occupy the ground between the Briars profitably with any vegetable crop to be cleared off by the time you name. Your former letter did not reach our hands.

Cabbages Clubbing (S. F.).—Much has been published in our columns

from time to time on this subject, and various modes of preventing or mitigating the evil have been submitted. Heavy applications of chalk or lime are advantageous, and you cannot err by carrying out the plan you suggest. A small handful of gaslime to each square yard of ground, and dug in several weeks before planting, is also useful, but it must not be used at the time of cropping. At that time a dressing of soot is useful, also a very little salt—less than an ounce per square yard. If the minimum temperature of 50° is maintained in the conservatory during the winter the Euphorbia will succeed planted out.

Azaleas Unhealthy (*A. S. D.*).—We fear you have deferred seeking assistance until it is too late. If every portion of your plants is like the sprays sent there is certainly little or no hope for their recovery. Although you did wrong in repotting in October, the chief injury was doubtless done long before then. After Azaleas have ceased flowering they are often neglected by amateurs; the soil is from time to time suffered to become quite dry, and the leaves of the plants to flag. This cannot occur without many of the fine hair-like roots being destroyed, and the leaves are certain to fall off afterwards and the buds to shrivel. Potting, as you appear to have potted the plants, late in the autumn usually aggravates the evil, as what few roots escape injury in summer are very likely to decay after being disturbed so late and placed in fresh soil, probably not of the proper kind. You had better procure fresh plants and try again; you will most likely succeed next time.

Parnassia palustris (*Sussex*).—The best mode of increasing this plant is by division, but if you have only seeds they must be sown in light soil kept constantly moist, indeed it can scarcely be too wet. A cool shaded corner in a frame or similar suitable position should be selected, and little difficulty will be experienced if the seed is good. One very important point, however, with this and other bog plants is that the seeds be sown as soon after it has matured as possible, for they soon lose their germinating power if retained long out of the soil. The time of flowering will depend upon the condition of your seeds and the growth of the plants afterwards, but they flower in a small state.

Lily of the Valley Failing (*U. S.*).—You do not trouble us at all by stating your failure and asking for information. The crowns were not matured, and hence their refusal to grow when you placed them in heat. They will doubtless grow in time. You are right in your views as to plunging the pots, but the plants seldom produce roots before flowering. For producing flowers very early plants that are forced should be carefully grown, the foliage being exposed to the light and matured early. These will flower earlier than imported clumps, unless the latter have been specially prepared. Crowns of Lily of the Valley can be grown as well in England as on the continent. The same post that brought your letter brought us very fine spikes from a correspondent as the produce of home-grown crowns.

Plants for Window Boxes (*Preston*).—As you have the opportunity of seeing the window boxes about London, you cannot do better than take note of the plants employed. Pelargoniums of the Zonal and Ivy-leaved types, Lobelias, Heliotropes, Fuchsias, Calceolarias, Harrison's Musk, indeed nearly all kinds of bedding plants, are suitable for window boxes; but the secret of success consists in first having fine and well-prepared plants, then affording them good soil and careful attention as regards watering, giving liquid manure when the boxes are filled with roots. In the best window boxes about London the plants are very fine, well grown, and flowering more or less freely when planted.

Roses and Climbers for a Conservatory (*C. R.*).—You will probably need more than one plant for the space you name. Two useful plants well adapted for such a position and temperature are *Lonicera sempervirens* and *Habrothamnus fascicularis*, both of which grow and flower very freely. If you are not particular about them all being evergreen, add *Plumbago capensis*, which will afford a pretty contrast to the others. The Roses most likely to succeed are *Gloire de Dijon* and *Maréchal Niel*.

Rogiera gratissima and Luculia gratissima (*J. F.*).—These plants, although related to each other botanically, are quite distinct in general appearance and very easily recognised. The *Rogiera* is a small evergreen shrub with ovate dark green leaves, and dense terminal clusters of small tubular flowers, each with five roundish lobes, wax-like in texture, and soft pinkish white in colour. They possess a very pleasing fragrance. The plant succeeds well in a greenhouse temperature, requiring well-drained pots and a compost of light turfy loam, peat, and sand. A little pruning and attention to the plant will be needed to keep it in compact form, but it is otherwise easily managed. The *Luculia* is also a shrub, but of much larger and more straggling growth; the leaves are also considerably larger, quite different in texture and colour. The flowers are tubular but with broad lobes, the flower being more than an inch in diameter. The flowers are pinkish or nearly white, and exceedingly fragrant. It is especially beautiful planted out in a conservatory or greenhouse, but a position must be carefully prepared, well draining it, and employing a compost of loam, peat, leaf soil, sand, and a few pieces of charcoal. Young plants raised from cuttings of firm wood with a heel of old wood attached may be grown in pots in similar soil to that mentioned above. They will flower in a comparatively small state and be much valued for the stages of a greenhouse. A woodcut of the *Luculia* appeared in this Journal, No. 974, Nov. 27th, 1879, and a figure of the *Rogiera* in No. 61 of the present series, August 25th, 1881.

Culture of *Pancratium fragrans* (*W. W.*).—This beautiful plant requires a rather high temperature and a moist shady position; a stove heat of 70° in summer and 60° in winter should be the minimum. Young plants should be shifted as soon as they fill their pots with roots. When the specimens are as large as required they should only be potted every four years. Employ a compost of two parts fibry loam, one part charcoal, and one part silver sand and sheep droppings. The loam must be broken into pieces about the size of pigeon's eggs, the charcoal the same; when all has been turned two or three times it should then be run through a half-inch riddle, and what remains in the riddle place in the pots. In potting the soil should be rammed very firmly. In the stove they should be close to the glass, but shaded from the direct rays of the sun, and they should receive a bountiful supply of water in the summer time both from the watering can and syringe. Even during the winter the syringe must be more freely employed than for most stove plants, particularly so if the stove in which they are placed is not furnished with vapour appliances. They can be placed in a cool conservatory when in flower, and supplied with a little weak liquid manure; it prolongs their flowering season, and also imparts a much finer waxy appearance to the flowers—moreover, they last much longer in a cut state when subjected to this treatment.

Coronilla glauca (*Idem*).—This useful greenhouse plant is very easily grown. The best time to repot those plants which need such treatment is after flowering, shortening any old strong growths a little. Place the plants in a moderately warm and moist house, syringing them freely to encourage the growth, which must be afterwards gradually hardened previous to placing them

outside in summer in a shady cool position. They can remain there until September, carefully attending to the supply of water in the meantime, and then transfer them to the greenhouse or conservatory, where they will flower freely.

Culture of *Daphne indica rubra* (*Wicklow*).—This *Daphne* will not continue long in good health if nursed in houses the whole year and subject to great extremes in temperature. Dry heat in the winter for the purpose of excluding frost from the plant is a great mistake, and does more harm than good. When subject to greenhouse treatment all the year the plants do not enjoy that period of rest so essential to their well-being, nor is the wood sufficiently ripened. In the spring place the plants on moist ashes in a cold frame, which should be well ventilated when the weather is at all favourable. As the days lengthen and the sun has more power the lights can be taken off during the day, closing the frame in the afternoon with a little sun heat, and syringing at the same time. Under this treatment the plants soon start into growth, and the points of the shoots should be pinched out after a few inches of wood has been made if good bushy plants are required. If flowers are not wanted the shoots may be stopped twice or more according to the growth; but when bloom is required they must not be stopped more than once and that early, or the growth will not be sufficiently ripened. As the season advances ventilate the frame freely night and day until the lights can be taken off entirely, or the plants placed outside on ashes or partially plunged, which prevents them from drying so quickly at the roots. The *Daphne* dislikes being excessively wet at the roots, and is most impatient of drought. In potting, good drainage must be given to prevent the soil becoming sour. The compost most suitable is rich fibry loam and plenty of coarse sand well mixed. If no better place can be selected for the plants during winter than the cold frame in which they have been growing frost will not injure them. They can be brought into flower by a little additional heat, but as soon as flowering is over the plants should be hardened and placed again in cool quarters. The name of the other *Daphne* to which you referred was quite illegible.

Cinerarias Dying (*G. R.*).—As far as you remember you say the plants were not rootbound in the small pots. We can only judge of the one plant sent to us, and the curled roots themselves afforded conclusive evidence on that point. The plant we examined had most certainly been rootbound in its early stages, and the compressed roots near the stem caused an accumulation of water there that contributed more or less to the decay of the plant; but excessive luxuriance in the first place, and too light soil afterwards, are in our opinion the primary mistakes that have led to failure. We also think you may have injured the roots by the application of too strong liquid manure or insecticides. The plant we examined had really very few, much too few, fibrous roots, as is usually the case with plants grown in rich and too light soil. This will account for such little water being absorbed. At the least four times the quantity of fibrous roots ought to have been produced by a plant of that size, and such roots would unquestionably have been far more numerous if firmer soil had been employed. What appears strange to you is not at all strange to us, and your case is by no means either the first or the worst that has come under our notice. So long as plants with "leaves like Rhubarb" are kept in a moist frame they continue fresh, but when brought into a drier atmosphere they assume a sickly hue and often die. For the final potting the soil should have consisted of quite two-thirds of much stronger loam than you have used, the remainder of crushed charcoal and perfectly sweet decayed manure, with about a fifteenth part of the bulk of bonemeal and a tenth of silver sand. The manure you employed was not sweet, and the grubs which are the result of it are injurious. Clear lime water would have been much safer than what you employed, and equally effectual. Plants having such few roots as you sent to us did not require liquid manure of any kind, and its effect would be injurious rather than beneficial.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (*J. E.*)—Your Apples are all very much past, and all we can distinguish are—4, Dutch Mignonne; and 6, Lemon Pippin. (*J. T., a Reader*).—1, Cox's Pomona; 2, Sir William Githons; 3, London Pippin; 4, Winter Pearmain, small specimen.

COVENT GARDEN MARKET.—JANUARY 25.

BUSINESS quiet. Best Grapes improving in value.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	1 0 to 4 6	Lemons.....	per case	12 0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	per lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	per 100	4 0 6 0
Currants, Black.....	1 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	1 sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	1 0 4 0
Filberts.....	per lb.	0 0 0 0	Pine Apples	per lb.	1 6 2 0
Cobs.....	per 100 lb.	75 0 0 0	Strawberries	per lb.	0 0 0 0
Gooseberries	1 sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	per lb.	2 0 6 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	per 100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	1 sieve	2 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 0
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 6
Capsicums.....	per 100	1 6 2 0	Radishes..... doz.	bunches	1 0 0 0
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzoneria.....	bundle	1 8 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	2 0 2 3
Endive.....	dozen	1 0 2 0	Shallots.....	per lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	per lb.	0 6 0 0	Tomatoes.....	per lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

MAKING FIRST-CLASS BUTTER.

(Continued from page 63.)

IN previous observations relating to butter-making we omitted mention of using a small quantity of fine white sugar at the same time as the salt is applied, but in rather less quantity. Sugar has been used with good effect both in summer and winter, as it not only improves the flavour in some cases, but it also acts as a preservative. Its use is, however, most important in the winter months, because it improves the flavour by counteracting any prejudicial effect arising from the cows feeding on roots. It is also of some consequence as applied to the butter when made from cream which has been some days collected before being churned.

Under some circumstances the farmer may be unable to obtain sufficient of the best fresh butter in winter; and it is somewhat important that during the summer or early autumn months some provision should be made of preserved butter, in order to supplement the supply when it may be inadequate to the requirements of the establishment. In potting the butter we employ an earthenware cream pan, or pot glazed white inside; and if the butter is made from fresh cream daily, and placed in the pot with as little sugar and salt as when made for present use, being placed in one layer each time of making, it needs no other salting; but each layer should be covered with well-prepared and perfect brine, which, however small in quantity, should be poured off before the next layer of butter is placed in. If this process is continued until the pot is full, and a covering of brine about half an inch deep is applied, the butter will then be ready for use, and even after many months it is almost equal to the best fresh butter at the time of making, and does not possess any unpleasant flavour which sometimes arises from the butter being oversalted. This has been our practice for many years. There is one important matter to be considered when the butter is first cut for use, and it is this—that when any portion is removed for consumption the brine which had covered it should be allowed to flow into any incision or hollow, and still be allowed to prevent the air reaching any remaining portion. Without this is attended to some would turn rancid. In separating the cream the plan now pursued is the reverse of ours formerly in use, for we used to consider that the most cream was obtained by placing the milk in wide and shallow milk pans. The improvement now consists in the use of narrow and deep pans. This circumstance alone ought to show the home farmer that with all the care and trouble bestowed upon making good butter he may still have something to learn.

The kind of churn or machine to be used in churning will depend to some extent upon the quantity of cream to be made into butter at one operation. For churning about 20 lbs. of butter or less we should choose an ordinary machine turned by hand, and which has been in use for upwards of thirty years, or otherwise a small tumbler called Hathaway's Little Model Barrel Churn. If for larger quantities we cannot do better than use the large barrel tumblers which have long been employed in large dairies, for they are perfect in operation, the butter is readily removed, and the barrel easily sealed after use.

We now approach one of the most important points to be considered in the whole process—namely, the working or beating of

the butter on its coming from the churn, in order to make the mass solid and press out any remaining buttermilk. The old plan was for the dairymaid to take a portion of the butter on a trencher and beat it by hand; but this cannot be so well for the butter, especially in hot weather, as when it is manipulated by a process where the hand never touches it. For this purpose we recommend for use what is termed the "Embrée Butter-worker," an American invention shown in work at the Royal Meeting at Derby last July. It is worked by turning a handle, and consists of a revolving circular table sloping from the centre to the circumference, on which the butter is placed and pressed with a fluted roller by hand. The expressed moisture passes by gravitation to a channel round the edge of the table and runs away by an opening provided for the purpose. The attendant keeps moving the butter with a couple of wooden "hands" or beaters to the roller, which in a short time squeezes out all the buttermilk and consolidates it. After it is taken from the workers it is consolidated into a large lump; it is then immediately made up into half-pound pats, or 1 or 2 lb. portions as desired. Half a pound having been taken and carefully weighed is placed on a round mould, which is pressed upon it once or twice to give it its stamp, and the edges are dexterously turned on the fluted edge of the board to give a finish to the whole. Being then placed in a small basket enveloped in muslin it has a very neat appearance, and a large quantity made at the Show was bought by visitors and carried away by them direct from the dairy. There was also exhibited the "M M Butter-worker," which is a hand machine working on a similar principle, and intended for smaller dairies. It is quite obvious that machines of this kind are destined to supersede the old methods of hand-working in all dairies where the finest class of butter is desired.

We must now call attention to the fact that if the dairy room is situated so as to be under the influence of foul air and odours it is quite useless to expect first-class butter, even after all cleanliness has been used in the process of making. If the milk is tainted by cows being fed with objectionable materials, or affected at the time of milking in the presence of bad smells, whether arising from the pig pens being near, or even the imperfect condition of the cow pens, the results cannot be satisfactory. We knew a case where the cream was taken from the cow pens to the gentleman's dairy and made into butter by an experienced dairymaid, but it was uniformly ill-flavoured, although the cream was churned every other day. When asked what we considered the cause, we pointed out the effect of ordinary brick floors at the cow stalls; for, although they were washed down twice a day, the bricks were so impregnated with urine that they continually gave off ammoniacal odours which we considered affected the milk. This proved to be the case, for upon removing the brick floor in the cow pens, and using only an absorbent earth floor, the air of the stalls was always pure, and the butter good.

We cannot conclude this subject without referring to the breed of cows adapted for the produce of milk best suited for yielding cream of the required quality. It is usual to expect rather poor milk from the Shorthorns, Devons, Herefords, and some others, whilst the Channel Island cows, whether of the Guernsey, Jersey, or Alderney varieties of stock, usually furnish a rich yellow milk; and therefore whenever it is required to make first-quality butter the Channel Island cows should form a portion of those kept even in the summer months. In the winter months, however, these cows alone may be kept with advantage.

WORK ON THE HOME FARM.

Horse Labour.—This is a dull time unless the weather should be favourable and the land dry enough for ploughing. We do not mean fallow-ploughing for roots, as that should have been done by the close of the old year, but we allude to the ploughing of firm land, such as corn stubbles for pulse crops, as Beans, Peas, and summer Vetches. We do not like to plough the land beforehand for any of these crops, because we have frequently found that pulse crops do best, as evidenced by the headlands when they have been ploughed after the ridges for some time and seeded at the time of ploughing, for then the young plants have invariably grown more quickly than on those parts of the field which may have been ploughed earlier, and therefore we propose to drill the grain as described by us last week at the time of ploughing. We also prefer to mix our crops, especially in cases where the soils vary in different parts of a field. The mixture we prefer is Beans and the late Maple Peas, or Beans and winter Tares, and we choose the late Peas and winter Tares because they ripen at the same time as the Beans. The benefit to be derived from these mixed crops is that very seldom both crops suffer from blight or attacks of the green or the black aphides at the same time, for these insects are not prevalent in the same kind of weather. We have often found the Beans to pod well when the Peas were deficient, and *vice versa*; but a further advantage of a mixed crop of pulse is that as soon as the first work is completed between the rows of plants, the Peas or Vetches very quickly spread out from

the lines, reach across the whole space, and completely keep down any weeds, thus saving at least one horse-hoeing.

On the hill farm on the chalk, sand, or stone formations, if the weather should continue fine and open Barley may be sown if the land is clean. We never regard the date if the season is favourable and a good malting sample is required. One of the leading points, however, to be considered is that the Barley should be drilled or sown after the presser, so that the lines may be from 10 to 12 inches apart, for even on the chalk soils we have seen this plan carried to perfection, and have advocated it as being the best system whereby a stout malting sample can be obtained. Upon some of the mixed soils on the vale farms, however, it is impossible to depend upon obtaining a full-bodied grain of Barley except it is sown as dredge in admixture with Oats, and we have rarely seen an instance where the Barley has been thin. The only way to account for this is that the Barley has plenty of room, spreads its roots near the surface of the soil, whereas the Oats root more deeply into the subsoil. We have machines which will separate the Oats from the Barley perfectly. We can state with truth that on many soils it is the only way we can obtain a malting sample. The best Oats, however, to mix with Barley are the Black Tartarian, which is rather late variety and will wait until the Barley is perfectly ripe without shedding or shaking by the wind, which in some situations is frequently the cause of serious loss.

We must now look forward to the season for sowing Oats of an early variety, such as the Canadian and Swiss variety, both being white and of excellent weight and quality, also both are very early—a most important matter, especially if we grow stubble Turnips afterwards. It is also well adapted for Clover in the autumn, for when the corn is cut early Clover will grow very quickly. Last harvest scarcely any of the seeds appeared alive, yet the rains which commenced the first week in August gave us upon some farms a good cutting of green Clover for the cattle in October and November.

Hand Labour.—Men are still employed in thrashing and winnowing Wheat and Barley, this matter being more particularly a question of labour and condition rather than of price of the grain. It is well to keep the hand labour forward during the leisure period. Trenching in the meadows, and continued attention in irrigated grass land should be carried out.

Live Stock.—Ewes and lambs will now require special attention, as the store flocks of the Hants and Sussex Downs will soon be entering on the root-feeding; also the horned ewes with their early lambs are very fine this year, and freer from lameness than we have known them for several seasons. Where these have been well fed the lambs are now ready in considerable numbers to be sent to the London market, and will this year fetch a good price. The foreign importation of meat does not consist of choice fat lambs. It is, however, sometimes the case that very small sheep of light weights imported from abroad are dressed as lambs and sold as such, but they are very different on the table as compared with our best fed lambs. On the stock farms the young lambs will have a plentiful supply of Turnip greens, as they have lately grown up very quickly, but the lambs should receive a good allowance of hay and trough food in order to counteract the laxative effect of the Turnip greens. The flocks of wether sheep and tegs are now doing well, especially in those cases where they receive half a pound of oilcake per day with hay and cut roots.

POULTRY AND PIGEONS

COCHINS AND BRAHMAS.

WE publish to-day the portrait of Mr. H. Tomlinson's Buff Cochins hen "Empress," to which we referred a week or two back in our notice of that gentleman's establishment. As we have stated, our readers may fairly take this bird as a model of Cochins shape and characteristics. Of late years there has seemed to us to be rather a tendency on the part of judges and exhibitors to confound the Cochins and Brahma types. These are in reality perfectly distinct. The Cochins shape is round and lumpy; the carriage is what may be described as down by the head; the cushion rises almost from the base of the neck hackle, and falls again considerably to the tip of the tail feathers, which it almost covers. The Brahma, on the other hand, is much more level in carriage than the Cochins; the cushion does not rise directly from the neck hackle, but the back falls a little towards the centre, and the cushion then rises gradually and continuously to the tail. The curve formed by the cushion of a Cochins is convex, that formed by the cushion of a Brahma is concave. Another leading point of distinction is, that while there cannot be too much soft fluff about a Cochins, a Brahma should be rather hard in feather than otherwise. There can hardly be too little quill feather in the tail of a Cochins, whilst the Brahma should have a moderate amount of tail. This distinction would also seem to justify the allowance of a larger amount of hack feather to the Brahma than

to the Cochins, although, as judges seem now so generally to recognise as admissible hocks of any dimensions, much weight cannot be attached to this distinction. The Brahma is squarer in shape than the Cochins, and has a more ample development of breast. The legs of a Cochins can hardly be too short, while most fanciers prefer a fair length of leg in a Brahma, especially as to cocks and cockerels.

NOTES ON THE WOLVERHAMPTON SHOW.

THE Wolverhampton Show, which may be said to close the season as far as really important exhibitions of poultry and Pigeons are concerned, commenced on Friday last and closed on Monday. The entries of poultry were 766 in sixty-two classes as against 726 in fifty-one classes last year. The extended classification has, therefore, not brought with it a proportionate increase in the number of entries. We regret this, as the Wolverhampton Show has always been well managed and deserves the support of all fanciers. A part of the falling-off is doubtless to be attributed to a somewhat injudicious selection of the Judge for the Brahma classes. Mr. Burnell deservedly takes a high position as an all-round judge, and as a special judge of certain breeds, notably Dorkings, but we think it was a little indiscreet on the part of the Committee to ask him to officiate, and on his part to undertake to officiate, as judge in the Brahma classes at a Show like Wolverhampton. That this feeling was pretty general may be seen

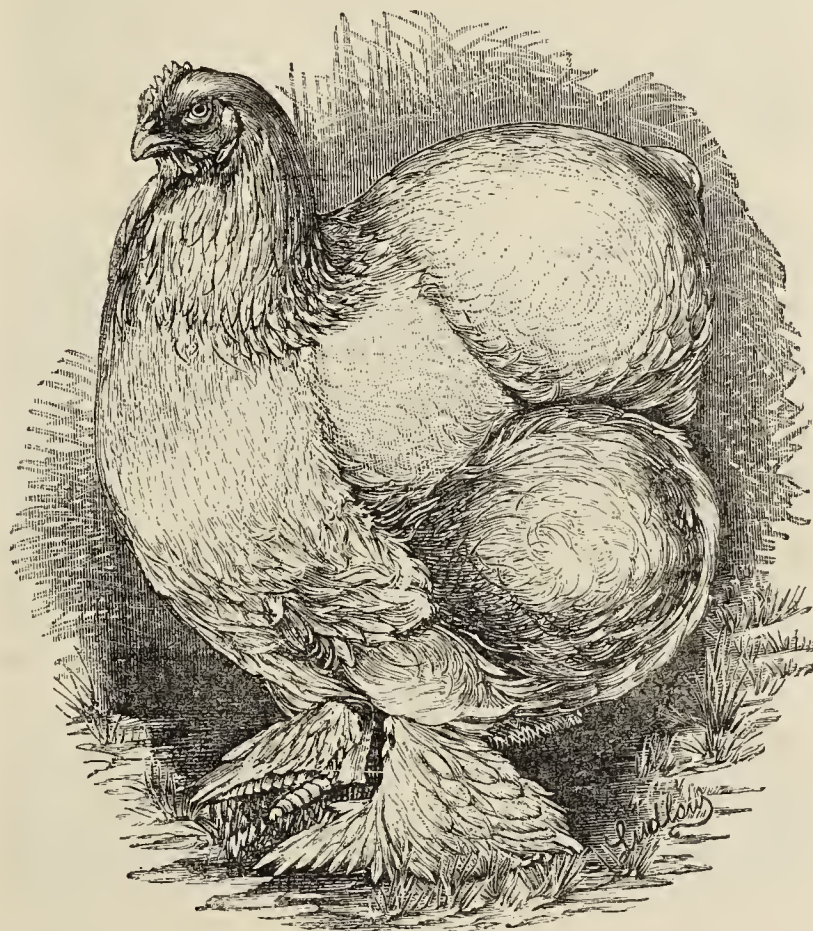


Fig. 17.

by a comparison of the names of the exhibitors last year with those this year. With the exception of Mr. G. H. Wood, Mr. R. Mitchell, and Mr. R. P. Percival, who are exhibitors in other classes besides Brahmata, and the local Brahma exhibitors who muster pretty strongly, the leading names were conspicuous for their absence. The entries showed a considerable falling-off, numbering only 90 as against 130 last year.

THE classification opened as usual with Game, which had 85 entries. The Committee were unfortunate in being deprived of the services of Mr. Lane, who was to have judged these classes, but who was prevented by indisposition from attending. In his absence they were taken by Mr. Dixon, whom Mr. Burnell relieved of some of the other classes to enable him to undertake Mr. Lane's work. The Game cup was awarded to Mr. H. E. Martin for a fine reachy Black Red cock shown in splendid condition. M. J. R. Fletcher won in the other variety cock class with a Brown Red; Mr. J. R. Pratt took a similar honour with a very hard-feathered Black Red cockerel, while firsts were also awarded to Messrs. A. J. Fludyer for Brown Red cockerel; G. Carless for a Duckwing cockerel; D. Harley for a Brown Red hen; and to Mrs. T. W. Stubbs for a Black Red hen. The classification of the Game is a little peculiar, but we presume the Committee finds it necessary to adopt it to meet the number of entries of cocks and hens respectively.

WHILE the winning Light Brahmas were in many instances of exceptional merit, and the same might be said of some of the winning Darks, the Brahma classes were on the whole poor in quality throughout. One of the chief mistakes in the awards was made in reference to the Brahma cup. This was given to Mr. R. S. Williamson for a bird which in the opinion of every Brahma fancier present should not have been in the prize list. He was very large and had a neat comb, but there his points of merit ended. He had no chest, grizzled hackles, was long in back, had white in the tail, and was quite wanting in Brahma shape. Mr. Mitchell's well-known winner stood third; he seemed a little overdone, but, even so, should in our opinion have stood first, whilst the fourth-prize bird of Mr. S. B. Davies was undoubtedly second in merit. The winning Dark Brahma hen (Mrs. Bennett) was grand in size, shape, and feather, and was well though not remarkably well marked, with an even type of pencilling. She was a trifle brown in ground colour. Mr. Percival's Birmingham winner stood deservedly second. In the cockerels we could not altogether agree with the awards; we thought Mrs. G. Ward's third-prize bird decidedly the best in the class. The winner (Mr. G. A. Eastwood) was larger and looked very well in profile, but seemed narrow, hollow-chested, and wanting in depth when viewed from the front. On the other hand Mrs. Ward's second prizewinner was not, we thought, entitled to so high a position, as he had nothing particular to recommend him. Mr. R. Holland's dark pullet easily headed the class, which was by no means a strong one. This was the bird which won the cup at Cambridge, and we think that either the winning hen or this pullet ought to have had the cup here. Personally we should have gone for the hen. Mr. G. H. Wood was the largest prizewinner in the Light Brahma classes; his birds stood first in each of the classes except that for hens, where Mr. C. R. Williams took the lead with a fine hen very distinct in stripe of hackle, and of pure colour. The Light Brahma cup was deservedly awarded to Mr. Wood's pullet. The awards in the Light Brahma classes struck us as being upon the whole satisfactory.

COCHINS were not so numerous as last year, although the appointment of Mr. Felton, who some years ago was very well known as a breeder and exhibitor of Cochins, ought to have led to a large entry. The prizes, as is very frequently the case when old and young birds compete against each other at this time of the year, went mostly to the old birds. The winning Buff (Mr. R. P. Percival) was very fine in size, shape, and colour; and the same remark may be made of Mr. A. Darby's first-prize Buff hen. The Partridge cocks did not strike us as being of particular merit, Mr. Percival's winner, though brilliant in colour, having rather too large and coarse a comb for our taste. We thought Mr. R. J. Wood's second-prize hen should have stood before the first-prize bird (Mr. T. Atterton) as being larger and more shapely. The Black Cochins were only a moderate class. Mr. R. Mitchell here headed the list, while Mr. N. Cook took a similar position in the next class with a splendidly shaped old hen, whose only fault was a want of middle toe feather. Whites were not numerous, but the winners were of very high quality. The cup for Cochins went to Mr. R. P. Percival's well-known old hen, and Mr. Darby headed the list in the cock class with an old bird of great merit.

DORKINGS were fairly well represented, the cup here going to Mr. L. Pilkington with the cock from the Cambridge cup pen. Mr. Butler Smith showed two fine, large, coloured hens to which first and second prizes were awarded. Mr. J. Cranston as usual headed the list in Silver-Greys, but we thought the birds hardly up to the usual quality shown by this exhibitor. Mr. J. E. Pilgrim repeated his Cambridge victory in the variety class with his fine pair of Whites.

SPANISH were, as is usual here, numerous and good. The winning cockerel (Messrs. Wingfield & Davies) was in the first-prize pen at Cambridge, and is one of the best we have seen for some time. Mr. W. Street stood first with an old hen, which we think, however, would have had to give way to Mr. W. R. Bull's unnoticed pullet (second Cambridge), but for some apparently accidental injuries to the beautiful face of the latter.

IN Houdan cocks the Cambridge winner (Mrs. Irving) was again to the front, while Mr. S. W. Thomas stood first in the other class with a very fine hen. Mr. A. Stevens still holds the premier position in Plymouth Rocks, pressed pretty closely by Mr. R. B. Wood. Miss Beldon's Silver-spangled Polish won the cup offered for this and five other classes.

MOST of the winners in Leghorns were of the Brown variety. Mr. A. C. Bradbury here headed the list with a good pair. Mr. W. L. Brooke stood first in a good class of Andalusians. The Hamburg classes were well filled. The chief prizewinners in the spangled and pencilled were as usual Mr. H. Beldon and Mr. J. Rawnsley; to the first-named the Hamburg cup was awarded for a very neat pair of Golden-spangled. In the Black Hamburg class, which had fifteen entries, Mr. J. H. Jaffray stood first, closely pressed by Mr. James Long, who was second. Mr. Darby and Mr. Cresswell won the chief prizes for Silkies with birds of the White variety. Fine Crève Cœurs, shown by Mr. W. Jackson, easily won in the Any

other variety class, Miss Beldon's Sultans being second, and the Rev. A. G. Brooke's Malays third.

BANTAMS, owing to the efforts of the Bantam Club, had twelve classes this year in lieu of three last year, and numbered no less than 145 in all. The cup for the Game section went to Mr. J. R. Fletcher with a Black Red cock, that for the other section being awarded to Mr. H. Stanworth for very neat Black Rosecombs. Mr. Fletcher also won five other prizes for Game Bantams, taking, indeed, all the firsts except those awarded to Mr. D. Clayton for Brown Red hens, and Mr. C. Peake for Pile cocks. The other cup-winner (Mr. H. Stanworth) also took first in the Black Rosecomb hen class, while Mr. J. Rawnsley held the premier position in the Sebright cocks, and the Rev. F. Tearle the like position in Sebright hens. Mr. H. Beldon's single-comb Cuckoos were first in the cock and hen Bantam variety classes respectively.

DUCKS had only two classes and were not very numerous. Rouens shown by Mr. S. Burn won in the class for Aylesburys or Rouens. Pekins as usual headed the list in the Variety Duck class, Mr. T. Allen being the winner. Carolinas stood second, Paradise Ducks third, and Black East Indian fourth.

BUTTER AND EGGS.

ALLUDING to the failure of the Treaty negotiations, the *Country Gentleman* says there is a point of importance connected with the failure of the negotiations for a new Treaty which should not escape even the farmers' notice. Of late the trade in French butter, eggs, and garden produce has enormously increased. Great freights of French things have come here because the vessels carrying them could always get return freights. But on the 8th of next month most of those return freights will cease, for the new French tariff will send up the charges so high that commerce from here will be greatly affected. Then, when return freights cease, the cost of sending French produce to England will rise proportionately, for the French sellers will have to pay the vessel's charge both ways. In that case the price of French produce will go up, and the competition with the English farmer will be reduced. It is true that the failure to conclude a new treaty is a misfortune for both nations; but it will prove in the end more harmful for France than for England. We can do without Normandy and Brittany, but Normandy and Brittany will find it very hard to do without us.

OUR LETTER BOX.

Dorking Unhealthy (*J. T., a Reader*).—Your Dorking hen evidently has inflammation of the digestive organs, which has caused her to drink an excessive quantity of water. Empty her crop of water by holding her head downwards; give her at once a tablespoonful of castor oil; keep her from the other fowls, and in a warm place; do not let her have any grain or water, but very light soft food (bread boiled in milk is best), and plenty of fine grit. In a week this treatment should cure her, unless the malady be of longer standing than you think.

Feeding Swans (*S. A. C.*).—The taste for bread is only an acquired one in Swans. Their natural diet is a vegetable one, which, in so mild a winter as this, they will provide for themselves. They may, however, have some oats or barley thrown down on the bank they frequent or into shallow water. They will first pick up the lighter grains which float, and then begin to dip their heads under water in search of the rest.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barome- ter at 32 ^s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1882.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
January.											
Snn. 15	30.691	39.2	37.8	E.	42.0	43.3	37.4	43.5	37.2	—	
Mon. 16	30.833	42.0	40.7	S.E.	42.0	43.4	38.9	43.1	39.3	—	
Tues. 17	30.928	32.7	32.7	N.W.	41.8	41.3	32.7	39.6	31.4	—	
Wed. 18	30.950	32.3	32.2	Calm	40.8	36.8	29.9	37.9	31.4	—	
Thurs. 19	30.911	36.4	36.4	Ca	40.0	42.0	32.1	48.4	33.0	—	
Friday 20	30.746	39.9	38.2	N.W.	40.8	41.8	35.0	41.9	36.0	—	
Satur. 21	30.735	34.4	33.4	W.	39.8	41.4	30.7	58.1	25.3	—	
	30.829	36.7	35.9		41.0	41.3	34.0	44.6	33.8	—	

REMARKS.

15th.—Dull and hazy.

16th.—Gloomy and dark.

17th.—Calm; very high barometer; dull and hazy.

18th.—Cold and foggy; very calm; very high barometer.

19th.—Dark foggy morning, finer afterwards.

20th.—Very dark in morning, with dense high fog; fine evening.

21st.—Fine dry day with sunshine; fog in evening.

Weather generally calm, dull, and foggy. Barometer remarkably high; at 10.30 A.M. on the 18th it stood at 30.955 inches, the highest recorded since 1825. Temperature about 6° below that of the preceding week, and about one degree below the average.—G. J. SIMONS.



2nd	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
3rd	F	
4th	S	
5th	SUN	SEPTUAGESIMA.
6th	M	
7th	TU	
8th	W	Society of Arts at 8 P.M.

NOTES ON ROSE CULTURE.

HERE can be no doubt that cultural details based on practical experience regarding the Rose are always acceptable to the readers of the Journal. The Rose commands more attention than any known flower, and this is not surprising when we consider its beauty, its fragrance, and the adaptability of some varieties to bloom at almost any season of the year by forcing or otherwise. The delicate, peculiar, and lovely flowers of orchidaceous plants are highly prized by many, but the Rose has a much more widely spread interest, even in summer, and in winter this is, if possible, increased.

The formation of an outside rosery, as well as attention to the soil and situation, are doubtless very important features connected with the successful culture of the Rose; but these may be satisfactorily provided and the cultivator then fail. There are localities where the Rose fails to flourish in the most sheltered positions, the air being laden with noxious vapours from adjacent chemical works. How would many of the varieties named in the Journal in the late elections thrive in such localities, and in smoky districts generally? Many would not grow; but I will in a future issue give a list of some varieties that succeeded fairly well in such districts, and hope others who are able to add to it will do so for the benefit of those who reside near towns. Sheltered positions are without doubt advantageous to screen the plants from these vapours. The soil, if unsuitable, can be removed, and other more suitable supplied. But the cultivator cannot purify the air; all that can be done is to know what varieties to select. If only a limited number, they should be contented with them. Cultivators are frequently too anxious to grow a number of varieties, but all such ideas in smoky districts must be abandoned.

In forming a rosery in a suitable locality I do not consider a thick tall screen of trees on the northern boundary and another on the west are needed. The eastern and southern sides are also sometimes shut in by means of trees and evergreen shrubs. The long spreading and rambling roots of trees soon exhaust the food allotted to the Roses. In such positions Roses are much subject to the attacks of mildew in dry seasons and the ravages of green fly. If such a screen be needed, how do the thousands of Roses grow so well fully exposed in nurseries? Yet many of the fine exhibition blooms are there produced that take such prominent positions at our horticultural shows. Roses planted on elevated positions on the sides of hills in the northern parts of the country might with advantage have some shelter; but it is not needed except in cold

localities. It will be understood these remarks do not apply to a rosery for the tender varieties of Teas. It matters little what situation is selected; there will be found no perceptible difference in the growth and condition of the blooms whether the rosery extends north to south, or east to west, as long as it is not shaded by trees.

The soil for Roses should be heavy rather than light, and must be well enriched with manure. If too light, clay is valuable to incorporate with the soil. Wood ashes in very strong soils produce a beneficial effect, but no better manure than bone dust can be used for Roses. If such were more generally employed the growth would be less rapid and pithy, and would consequently ripen better.

The ground must be well drained, as stagnant moisture is detrimental to the development of first-rate blooms. The first preparation of the soil for the beds or borders and planting the trees is not the only attention they need. They require to be periodically lifted, as the soil becomes exhausted when they occupy the same ground for a number of years; hence their lack of vigour and the necessity for lifting. Suckers can then be removed from the roots and a little new soil incorporated with the old, which will again give strength to the plants and assist in keeping them in a healthy condition.

Planting is simple, yet the operation is often done in a careless manner. The condition of the soil should be well considered, and planting should not be carried out when it is in a wet and unsatisfactory state. Deep planting, too, should be avoided, especially with those Roses worked on the Briar, as the Briar will not succeed when planted deeply. For example, we need only notice Briars growing naturally in hedges with their roots close to the surface, and in many instances partially bare; yet in this state they grow most luxuriantly. Those on the Manetti are much benefited by being planted deeply, as the Roses can then produce roots above the junction of stock and bud. I prefer planting in early autumn before the leaves fall, as it insures the plants making a few fresh roots before winter and abundant blooms the following season; but hundreds of Roses are successfully planted in February. The roots should, when near the surface, be protected from frost by means of litter or a good covering of short manure. Liquid manure is beneficial to Roses during the growing season, and assists them greatly in certain stages of development.

Pruning is not the least important point connected with the management of Roses, yet it is one that with many is imperfectly understood. The nature of the Rose should guide the operator. Some of the Tea and Noisette Roses do not require much pruning, yet they are not unfrequently subjected to the same close pruning as the Hybrid Perpetuals. Pruning the latter must not be done too early; the end of March or beginning of April is early enough. Roses naturally start quickly into growth, and if pruning is done too soon the back buds start, thus running the risk of the young shoots being severely cut by late frosts. Shortening the branches to a bud should not be the only aim of the pruner; but the weak growths must be removed, so that the whole strength of the plant will be concentrated into a number of strong shoots. Such varieties as Gloire de Dijon, Cheshunt Hybrid, Climbing Devonensis, Lamarque, Cloth of Gold, Céline Forestier, Maréchal Niel, and others of the same habit of growth, need but little pruning in spring, only removing the unripe points of the shoots and

the small shoots that are not strong enough to flower. In adopting the close-pruning system with these varieties the majority of the flowers would be pruned away. They produce a flower from nearly every eye along the shoots, which frequently are many feet in length. What further pruning is needed is best done after blooming by removing the old wood that produced the flowers, allowing the growths near the base to extend. Many other varieties of Tea Roses need the weak growths removed and the stronger shortened; their compact habit, especially outside, renders much pruning unnecessary.—W. BARDNEY.

VINES AT LONGLEAT.

(Continued from page 69.)

PARTITIONING THE BORDER.

By the time two of the compartments were ready for the border the spring of 1870 had arrived, and as I thought it advisable to have fruit as soon as possible after the house was complete, a quantity of fruiting Vines had been grown in readiness the previous season, with the intention of placing them along each side of the centre of the house and arching them over the pathway, making a continuous avenue about 8 feet wide. To carry out this plan it was necessary to make all the border at once, and as it was not thought advisable to allow the roots of temporary and permanent Vines to extend over it indiscriminately, $4\frac{1}{2}$ -inch partitions pigeon-holed at the bottom were run along each side about 8 feet from the walls, so as to confine the permanent plants to this space. Besides these longitudinal partitions others were built across the part intended for the more permanent Vines, dividing the length of about 80 feet into three spaces, in order that we might, if necessary, take out some of the plants without injuring all. It will be seen from the foregoing that even at this stage I had some idea that the Vines I now call permanent would not all be required, and that some provision was made for emergencies.

THE HEATING.

As I had already met with some disagreeable experiences since my arrival here in this matter, the pipes in the forcing houses being arranged with the greatest possible number of dips, and with the return pipes on a higher level than the flows, I was naturally anxious about this part of the subject, and insisted on having the simplest arrangement possible. Happily there was no one to disagree with me, for the tender of Messrs. Weeks was accepted, and they very obligingly fixed the pipes just where I wanted them, took all the responsibility off me, and guaranteed their working satisfactorily. There are ten rows of 4-inch pipes, one flow and four returns, on each side of the house, either side in each compartment working separately. There are two "Long No. 4" tubular boilers fixed, but one at a time is sufficient to do the work, and we frequently employ them alternately. The only objection I ever had to this kind of boiler no longer exists. There used to be a sad waste of fuel, half the heat escaping up the chimney. However, since the form of the boiler has been altered so that it can be set with a spiral flue there is no reason to complain in this respect. Many of the pipes are cast with troughs on them to hold water for evaporation, but I have long ago discontinued their use.

THE TRELLIS.

This is not fixed parallel with the roof as is usually the case, but is 2 feet from the glass at the lowest point,

and is carried over the central part of the house just $8\frac{1}{2}$ feet from the surface of the border, where, owing to the lantern being above, it is some 7 or 8 feet from the roof; and at 3 feet from the centre where the lantern rises, the trellis is about 4 feet from the glass. It consists of galvanised wire rather larger than a knitting needle stretched lengthways of the house and 10 inches apart. There are screws at one end of each wire to tighten it when required. My readers will see that the oft-repeated advice, "keep close to the glass" has not been followed here, and I will endeavour to give my reasons for this departure. But first, as to the disadvantages. There are several imaginary ones pointed out by visitors, but the only real one I have been able to detect is the loss of 18 inches for the Vine rods if we take a section across the house; all other disadvantages being quite imaginary. "Keep close to the glass" was sound advice no doubt when there was very little glass to keep close to, the panes being small, not very clear, and the roof half wood. But things are altered now. The roof of a modern vinery or greenhouse does not obstruct so much light as to be injurious, indeed it is rather the reverse during bright weather, and the old advice should die with the old houses. But we gardeners cling very tenaciously to old advice given by our forefathers when the circumstances were entirely different. I do not underrate the merits of our forefathers as horticulturists. I consider that with their rude appliances they did more creditable things than we do at the present day, but that is no reason we should follow them blindly under totally different circumstances. We do not find that plants become drawn in such a place as the Crystal Palace—it would be unreasonable to expect such a thing to happen, neither do my Strawberry plants become drawn during forcing, though they are from 4 to 8 feet from the glass. Of course there is nothing between them and the glass, and the latter is in large panes and kept clean. But I am rambling—I have pointed out the only disadvantage I know of in having the Vine trellis so far from the glass, and will now endeavour to name some of the advantages.

Firstly, I can reach without steps every bunch of Grapes in the house except those immediately over the pathway. The amount of time this saves is very great in the course of the year when pruning, tying, thinning, gathering, and general supervision are taken into account. The latter point cannot be overestimated, because, every bunch coming under the eye of the chief, he cannot easily be deceived in the work of those employed under him.

Secondly, The advantage of having the ventilators 5 or 6 feet above the foliage in cold spring weather is a great one, as the fresh air cannot reach the delicate tissues till it has become considerably softened by the moisture and warmth of the internal atmosphere.

Thirdly, The advantage of keeping the foliage clear from the glass instead of allowing it to press close against it as it usually does is greater than many people imagine. When the latter is the case many of the best placed leaves cannot perform their functions because their upper surface is moist half the time, and is pressed so close to the glass that respiration and inspiration cannot go on as it ought to do; and to this alone I attribute the want of finish in many an otherwise good crop of Grapes. Then, again, the changes of temperature are so great close to the glass. In severe weather we have ice actually inside the glass of a hot-

house, and the leaves of plants situated there are frozen. It will be remembered that in the autumn season about two years ago the Vines in the large house at Chiswick and several other places lost their foliage while it was still green, and caused no little consternation and surprise because the thermometers in some of the houses thus affected were known not to have recorded a lower temperature than 40°. The matter appeared simple enough to me. The temperature in the houses under my charge probably fell as low as in those where the mischief was done, but the Vines did not suffer. Those who would have solved the problem should have placed their registering thermometers on a frosty night as close to the glass as they allowed their Vine leaves to be, and the mystery would have been less. It was well known at the time that if there was little or no frost registered in the air at 4 feet above the ground, the temperature on the grass fell considerably below the freezing point (there is often as much as 8° difference between the surface of the ground and 4 feet above it), glass having very little power to prevent radiation, the Vine leaves at such times are comparatively little better off than the grass under our feet.

The fourth advantage I claim for my trellis is that the Vine shoots can be allowed to grow in a natural position till after flowering. Probably the flowers set better for this, and it is certain that tying down becomes a very easy matter. Everyone knows how difficult it is to tie a young Vine shoot down, and how very often when a shoot is tied down in the day and seems all right we find it snapped off next morning at the junction with the old wood; and not only do we lose the shoot that season, but there is often left a permanent blank. This never happens when the tying is deferred till after flowering, the shoots are then comparatively wiry and can be bent to a horizontal position with ease. There has been several contrivances for remedying the evil of shoots breaking off in this way, such as employing V-shaped trellises, slinging the rods below the trellis, tying down a little at a time, &c., but the simplest plan is the best, and that is to have the trellis at least 2 feet from the glass and tie the growths down at the same time the fruit is thinned.—WM. TAYLOR.

CHOICE IRIDS.

LAPEYROUSIA.

IN this genus we seem to lose the prevailing characters of the Irid family, at least as regards their general aspect. In the place of a perianth with the inner and outer series of divisions differing considerably in appearance, the petals and sepals are similar in form, colour, and direction. This imparts a most distinctive effect to the flowers; and a casual observer would scarcely suspect them to be allies of the Irises. Though the flowers are smaller than those of many others in the order, they are brightly coloured in some forms, and are produced in sufficient numbers to render them equally as attractive and pleasing as many of more pretensions. Seventeen or eighteen species are known, but few are in cultivation, and to these the preceding remarks chiefly apply, as, judging by figures that have been published, some are far from ornamental either in form or colouring. They are all natives of the Cape, with small bulbs, and bearing racemes or corymbs of flowers in spring—May and onwards. They are best grown in the cool house, though *L. corymbosa* is occasionally grown out-side in warm sheltered positions.

L. CORYMBOSA.—Probably this is the most widely known species, and either under the names of *Ixia* or *Ovicda* it may be found in many collections both in England and on the continent. This is partly due to its own attractions, and partly to the fact that it has been longest in cultivation. It is one among the numerous plants discovered by Thunberg at the Cape of Good Hope, where it was chiefly found in sandy positions in Swartland, and subsequently introduced a few years before the close of the eighteenth century. The specific name was applied in reference to the inflorescence, which is corymbose in

form—a good distinguishing mark, as in most of the others it is spicate or racemose. The flowers are composed of six ovate segments bright blue in colour, with a white and dark blue-angled band encircling the central portion of the flower, and near the base of the segments. The angles are acute, and extend about half the length of the petals, thus giving a peculiar starlike appearance to the flowers. These are clustered on lax slender stems, the leaves being very narrow and tapering. The woodcut (fig. 18) conveys a fair idea of a corymb of the flowers. This form varies considerably in the depth of the colouring, and it is said there is a variety with fine white flowers, but I have not seen it.

L. FISSIFOLIA.—As an example of a distinct section of the genus, and one which is scarcely represented in gardens, this species deserves a few words of description. It rarely exceeds 7 or 8 inches in height, with tapering stem-clasping leaves, which towards the



Fig. 18.—*Lapeyrousia corymbosa*.

upper part of the stem become small, much like foliaceous bracts. The flowers are produced from the axils of the leaves, chiefly near the apex of the stem; they have very narrow tubes 2 inches or more in length, expanding into six small ovate lobes, varying in colour from very pale pink to bright rose. They are also pleasantly fragrant—a quality the first-named species does not possess—and they are remarkable for their brittleness. It is a delicate little plant, far from imposing, yet pretty, and well deserves a place in a collection of Cape bulbs. I believe it is still in cultivation in a few gardens, but it is rarely seen, which is to be regretted, as many less interesting plants have been preserved and hold a place in gardens. Bulbs were introduced by Messrs. Lee & Kennedy in 1809, and an excellent coloured figure was published in the "Botanical Magazine" of the same year.

ANOMATHECA.

The two species which constitute this genus are nearly related to the *Lapeyrousia*s, differing chiefly in the arrangement

of the flowers, which are borne in one-sided racemes. They are both of easy culture, but only one is grown in quantity—namely, *A. cruenta*, of which the woodcut (fig. 19, page 89) is a representation. This, however, is not only widely known, but is much appreciated in many gardens, as it is quite hardy in the south of England, and it will even survive ordinary winters some distance north if a sheltered position be chosen, or protection be afforded when necessary. The plant is not very particular as to the kind of soil, though it should be preferably light, and in all cases well drained. Some practise lifting and storing the bulbs in late autumn, and if the situation is very wet this is judicious and prevents some losses, otherwise, especially in warm localities, it is unnecessary. Still, some should be grown in pots, as very attractive and useful specimens for the cool house can be obtained with little trouble. Light turfy loam and peat, with a good proportion of sand, will suit them well under such conditions, and as growth is advancing an occasional supply of weak liquid manure will be advantageous, improving the flowers both in size and colour. One bulb in a small pot, or several in a large one according to the size, will be needed; and as the plants are rather tall in growth, reaching and even sometimes exceeding 2 feet in height, a light stake may be employed to keep the stems in position. This, too, is generally needed in the open border, as they are very liable to be broken by wind or beaten down by rain if some similar precaution be not taken. In planting it is well to avoid placing the bulbs very deeply, as that is likely to result in weak and imperfect growth. Three or four inches below the surface of the soil is quite sufficient.

The plant is of slender and graceful habit; the leaves are about half an inch broad, tapering somewhat like *Ixias* and other similar plants. The flowers have each a long tube and six elliptical divisions, bright red in colour with a tinge of scarlet; the three lower divisions are broader than the others, and have a dark blotch at the base. Though individually they do not last long, the scapes are produced in constant succession during the greater part of summer, and even as late as September.

The other species is *A. juncea*, which is very rare in gardens, although it has been long grown in this country. The flowers are very bright pink in colour, with a dark spot at the base, and are produced in considerable numbers.—L. C.

RHUBARB.

ANYBODY can grow Rhubarb and on any kind of soil, but some persons grow it very badly for that very reason. Once when a journeyman I had a lesson in manuring generally, the use of sewage in particular—Hollyhock-growing and Rhubarb-growing all in one. It is a few years ago, but the lesson is as good now as then.

The head gardener was a great Hollyhock grower. The soil was an exceedingly stiff clay. Sewage could be had in quantities, and, used moderately for Cabbages and Cauliflowers, produced immense crops; then why should not a good supply produce unheard-of Hollyhock spikes? A piece of ground of no great value was near, the manure was readily obtained; so a trench was made at one end of the ground, the soil was wheeled to the other, and trenching was commenced, a liberal amount of the sewage being mixed in to a depth of 3 feet. After the piece was finished there were many laughing anticipations of the towering spikes that were sure to come. This was before the planting was done, but there was nothing but vexation afterwards. The season was hot; and though the soil was clay, it was either so saturated with the ammonia that it could not hold all that the decaying manure emitted, or it was too hot to hold it. At any rate the gas escaped in quantities sufficient not only to kill all the Hollyhocks but also the weeds.

Next year Rhubarb was planted on the same ground. A dry spring followed; the Rhubarb received no water, and the prospect was not encouraging. Shortly afterwards there came a heavy fall of rain, which enabled us to knock to powder the huge lumps of clay that the previous heat and drought had baked. In the hurry of other work the Rhubarb was forgotten. Some weeks after, indeed near the end of summer, the Rhubarb had leaves 6 feet high. The laughing after a long suspension began again, but there was really something to admire now—a splendid crop, and a convincing example of the power of sewage.—A SCOTCHMAN.

CAULIFLOWERS.—These are not always grown and attended with success. Where they are wanted early in the year it is advisable to sow in the autumn, transplanting the seedlings when of sufficient size, so as to be protected by handlights or cold frames during the winter months. Even then they are sometimes destroyed by frost. I remember an autumn batch being killed by the frost, and

in consequence an early sowing was made, the seedlings being transplanted on a slight hotbed, and thence to the common garden soil. Instead, however, of procuring good heads by this treatment, they nearly all ran to seed, which was the result of too sudden a shift from warm quarters to a cold one. Sometimes they fail through the manure being very fresh, as little worms are produced in numbers, which eat the roots, soon destroying the plants if the soil be not firmed about them again. The manure should be spread on the surface and dug in a few months before the plants are ready, giving plenty of time for the destruction of all worms.—Z.

THE NEW YEAR'S ADDRESS.

I NOTICE in the Journal for January 16th four different articles in which the above is kindly alluded to, in three kindly criticised. I will now reply to two out of the four, noticing the other two another week. With respect to the words of praise only by "W. J. M., *Clonmel*," I heartily thank him for them. In respect to his reference to temperance, if that be, as I apprehend, the subject he thinks "I may possibly differ," he will be glad to learn that I have not unfrequently administered the pledge, and once to a gardener, which alone saved him from losing his place. Never shall I forget the joy of the wife as she gradually gathered around her better furniture and better clothing for her family. Without temperance the best gardeners will, as I have seen them, come to grief. Fair abilities and good character will always beat high abilities and an inferior character. The most clever gardener I ever knew failed utterly in life from drink.

I next turn to the remarks of the well-known "C. P. P." In regard to the Seckle Pear we must differ. I fancy the influence of old association is very powerful with him in his estimate of this Pear. Next he "thinks me wrong to limit the varieties of Apples and Pears grown." It may be so, but I doubt it. I regard the question in a national point of view. We have to compete with America and the continent; but my belief is we can do this only with success if we send the very best fruit we can grow into the market. My personal observation and knowledge of recent years is very much confined to the south and south-western counties of England. The climate I live in is about that of Bath, and one admirably suited for fruit-growing; and in sending recently my list of the best Apples to Mr. Killick of Maidstone for his Apple election, I desire to be understood to speak only for the south and south-west. I think lists should be divided thus—one for the south and west of England, one for the midland counties, and one for north of the Humber.

"C. P. P." thinks me wrong, as said above, in trying to limit the varieties of Apples and Pears grown. In regard to the former the public are doing this themselves. Orders come to Messrs. Smith of Worcester in such abundance for Lord Suffield and Dumelow that they have almost a little nursery to themselves. So also of Black Hamburgh Grapes, by far the largest number wanted by customers are of this variety. I have found this year that Lord Suffield keeps better than Keswick Codlin, and I own that Margaret is a better Apple than Joanneting. Let "C. P. P." keep *Beurré d'Amanlis* until it is dead ripe, and I fancy he will think better of it. In Madame Treve I own I am disappointed. I find with "C. P. P." that Emperor Alexander Apple keeps extremely well, and *Winter Hawthornden* (not New Hawthornden, please) is beyond praise. As to pruning, my plan is that of an old vicar of the old school of a former generation, who in the latter part of his life needed a curate, and one of the happily new and energetic school came to him, who inquired of the old man what *speculum gregis* he used, or what was his plan in managing his parishioners. "My plan, my plan, young man! My plan is to let 'em alone—to let 'em alone." Certainly a very bad plan with human souls, but I find it a very good one with pyramid fruit trees. I let them alone, save where a branch crosses another, or when a tree grows too thickly, which is not often the case if you do not prune. But many densely thick bushes, wholly or in part fruitless, have I seen, where summer pruning has been carried on rigidly for years. With me a branch that is cankered is cut off, or one that intrudes over a path must go; but "let 'em alone" is my principle, and I get healthy trees blossoming and fruiting well in at all suitable seasons—Apples as a rule always, and Pears more frequently than my neighbours.

Lastly I would say that it is well for amateurs who are in comfortable circumstances to have many varieties of fruits, and I find nothing more pleasing than trying new or fresh sorts; but I had in my mind, when writing in favour of few and choice, the interest of those who need to sell and desire to sell profitably.—WILTSHIRE RECTOR.

P.S.—While writing this article I have had a visit from a head gardener who had noticed my remarks about the Seckle Pear. He tells me his employer so much dislikes it that this year he

would not allow it to be brought into the house, having decided that it was unfit for dessert.—W. R.

CULTURE OF THE COCKSCOMB.

FEW plants are more effective during the late summer months than well-grown Cockseombs, though they are very seldom seen in good condition. The first thing to insure success is to procure a good strain of seed, and then, with attention to the few cultural remarks that I here offer, little difficulty will be experienced. A structure heated with hot water is not required to grow them in, but a good dung frame suits them admirably. Sow the seed the first week in March in a compost of equal parts leaf soil and loam, and place the pot on a hotbed. When the seeds have germinated the pots should have a position near the glass to insure sturdiness in the plants. When large enough to handle transfer the seedlings to 60-size pots, in which they can remain until the combs appear; then shift them into 48-size pots, employing a compost of two parts loam, one each of leaf soil and decomposed cow dung. Place the plants low in the pots and plunge in the frame, maintaining the heat by linings. When the pots are filled with roots transfer the plants to 24 or 16-size pots, having the soil rough. Still keep them plunged until the combs have grown their full size, supplying liquid manure freely. They can then be removed to a cooler temperature, and finally into the conservatory, when the supply of water must be carefully attended to, or the roots will die.—A BERKSHIRE MAN.

INCRUSTATION OF BOILERS.

IN September last I wrote in reference to the "scale" on a boiler described by Mr. Ollerhead, that I believed such scale was caused by the boiling of the water rather than the mere hardness of it; which boiling ought not to take place in any circulator of hot water for heating purposes. Last month I was called to see a boiler of about the same heating power, but of the form called "Witley Court," which had burst for a length of about 2 feet along the inside of upper flue. One patch had been put on a large crack about a year previously and stood well. When the boiler was taken out it was thought to be unusually heavy, in fact 4 to 5 cwt. more than a new one, and on breaking it up it was found that the whole of this extra weight was incrustation. The boiler being only 5 feet long, the weight of this scale was greater in proportion than that in Mr. Ollerhead's case, and much greater when it is considered that the one I saw was in use only three winters, or a total equal to twelve months continuous use. The water was not hard, being that in ordinary use in Westminster, and it even had some liquid mixed with it as in adjoining steam boiler to prevent furring. If it had not been for this scale we should have said that bad welding or faulty iron was to blame. There was one 6-inch flow, and one 6-inch return; but the flow was on the top front, and the return in the middle of the end. The man in charge said that both flow and return pipes were equally hot (as might have been expected), and that the water in an expansion box on the top of the flow main was nearly boiling at times, but the coils in the building were barely warmed eight hours after lighting the fire, simply because there was no circulation going on.

Both mains acted as flows to a certain extent, and met somewhere in the building, while the boiler was destroying itself. This was the secret of the failure.

If there had been two 4-inch or 3-inch flows (about 2 feet apart), and a 4-inch return on each side as is usual, that boiler would have been doing good work for some years to come, because scale could not have formed with such an arrangement of outlets keeping up a constant circulation in the boiler itself. We really ought not to call them "boilers," unless they are intended to boil water into steam, but hot-water heaters or circulators, as that is their sole object. I may add that there was not a particle of scale on the flow and return pipes attached to the boiler, though the water in them must have been nearly as hot as in the boiler, but the fire heat did not touch them at all.—B. W. WARHURST.

CULTURE OF *CELOGYNE CRISTATA*.—Will some successful grower of *Celogyne cristata* give me, through the pages of the Journal, the proper treatment to insure success with those useful Orchids? So far I have not been able to obtain that desirable object. I will briefly describe the treatment they have been subjected to for the last three years, and I hope someone will point out where I am at fault. The plants are potted in good peat and sphagnum, and in pots large enough according to size of plant, are subject to a night temperature in winter of 55° to 60°, and 60° to 65° by day. In summer 60° to 70° by night, 70° to 85° by day according to outside temperature. They are permanently shaded during summer with

No. 3 tiffany. The plants are about 3 feet from the glass in a span-roofed house. We have not an Orchid house proper, but the plants are grown in a house with foliage plants, Ferns, &c. My largest pseudo-bulbs scarcely measure 3 inches in circumference.—KIRBY.

POTATOES SPROUTING—"SNIPPING" THE SETS.

EARLY ROSE.

MY first proceeding after reading "SINGLE-HANDED'S" critical remarks bearing upon this subject was to turn to what I had written on page 50, and as expected, found I had not, even by inference, expressed the belief that there is no help for Potatoes sprouting unusually early this season. If I truthfully assert "the remarkable mildness of the present winter is inducing an extra early growth," it does not follow I commit myself to the opinion that prevention is impossible. It will be seen I avow myself an "advocate of the prevention of undue sprouting," and I may



Fig. 19.—*Anomatheca cruenta*. (See page 58.)

further add not merely in theory but in practice. At the present time we have not less than six bushels of Ashleaves—principally Veitch's Improved—disposed on trays, with sturdy sprouts not half an inch in length. Others, for which we have neither trays nor suitable space whereon to thinly dispose them, are sprouting unduly; and this is the case generally among cottagers and others, who having been caught napping last season are taking too great care of their seed Potatoes this. There is no necessity to "put a considerable heap of damp Potatoes in a damp corner of a room and cover them" by way of experiment, as heaps of dry Potatoes in dry corners according to our labourers' experience have sprouted badly. Tubers "spread thinly near a window," certainly would not have been so forward; but after last season's experience, who can wonder at their being kept in heaps for convenience of protection? When I offered advice on the subject I was thinking of others' dilemma, not my own.

* With regard to snipping, I do not advise it to hasten decomposition, but, as will be found, to insure decomposition; and I do this simply to avoid the risk of mixing, at lifting time, the old sets with the new tubers. This may be unimportant in small private gardens, but with growers for market especially—these lifting hurriedly—it is very important, as a few will spoil the sample; and those not picked up are a nuisance. A snipped Potato with a strong sprout will not decay till all its starch has been converted into food for the use of the plant; and what good purpose will it serve if further preserved? Does “SINGLE-HANDED” mean to say it acts in the same capacity as the stem of a tree or a Vine? If not, where is the analogy? What is “SINGLE-HANDED’S” reason for planting whole tubers in one case, and those much cut in another?

Were I to give snipping a fair trial it would not be with a variety so uncertain as Early Rose; but even with this variety I have never had any difficulty, provided the cut or snipped sorts were sprouted. If I planted thirty snipped and thirty whole Ash-leaf Potatoes, properly prepared, I should expect to find no difference in the crops resulting; only in one case sound old Potatoes would most probably have to be dealt with. How is it such a good gardener as “SINGLE-HANDED” evidently is, still grows Early Rose? I was under the impression cottagers only were clinging to it, and even these were gradually discarding it. It is the most variable variety I am acquainted with, and if good in quality at any time, according to my experience, the colour renders it unsuitable for a gentleman’s table.—W. IGGULDEN.

TOP-DRESSING AURICULAS.

As the period for performing this necessary operation has arrived it may be well to give a few simple directions for those who are beginning to grow this lovely flower, and it is many years since we have had so favourable a time for it. Too frequently, as in the last two seasons, the plants at this season have been frost-bound. It has been quite impossible to get the earth away except where there is the convenience of a house in which to thaw them, and also to keep the compost until the operation is done. But this season all is different. There has been very little frost; but although the weather has been so fine I do not, judging from my own small collection, think that they are unduly favoured. In top-dressing it is necessary to remove with a blunt stick (disturbing the roots as little as possible) all the earth to the depth of perhaps 2 inches, gently moving the remaining soil if it is all compact with a thin stick, so that the top-dressing may freely amalgamate with it, and not be simply fresh soil resting on a hard surface. If very dry it is also better to give the plant some water before adding the fresh soil. Remove all dead leaves, and examine the plant well to see if there are any aphides, and brush these away with a small brush. If any signs of decay appear, such as a black spot at the stem, let the affected part be removed with a sharp knife and the wound dusted with powdered charcoal.

Various directions as to compost have been given by different growers, some advocating a very rich compost, indeed nearly all decayed sheep’s manure; others going to the opposite extreme, recommending nothing but loam. I have used one composed of one part loam, one well-decayed cow manure, and a small quantity of leaf soil. This should fill the pot, and then it should be watered with a fine rose, not wetting the foliage, and the plants placed in a frame facing the south, covering them up at night so as to prevent frost catching them. After one or two waterings, when the soil has become consolidated, the rose may be dispensed with and the plants watered with a small-piped watering can. Green fly should be carefully looked for, and cleanliness is indispensable.—D., Deal.

APPLES.

PALMETTE VERRIERS.

(Continued from page 67.)

I TURN from sunny memories of trees with which many an incident of youth was closely interwoven—orchard trees of Seek-no-Fathers, Costards, Lemon Pippins, Catsheads, Greasy Coats, Quarrendens, and Nonpareils, huge old standards with mossy stems—to what may be termed garden trees. Palmette verriers have ousted the horizontal-branched espalier from some gardens, and graceful pyramids have generally replaced the unsightly bush. I will first, however, refer to espaliers having the full benefit of rich soil and careful culture.

About thirty years ago my father planted a considerable number of espaliers, all of which were trained horizontally with rigid precision. In due course they bore fruit, and continued to do so abundantly for many years. They were such remarkable examples of successful fruit culture that in 1869 I wrote an account of them

in the Journal, telling of a Blenheim Pippin having a spread of 50 feet, a Hanwell Souring of 30 feet bearing four bushels of fruit, a Dumelow’s Seedling of 45 feet, a Bedfordshire Foundling of the same size, and many others all in the prime of health, vigour, and fruitfulness. Subsequently they deteriorated, the lower branches becoming attenuated and the upper a thicket of huge useless spurs, for barrenness is the inevitable attendant of this stage of the existence of such trees; and now the planter is gone to his rest, and the trees of which he was so fond are laid low. Since then I have planted some espaliers, but all of them are trained in the improved form of palmette verriers—a compound form, having the lower part of each branch horizontal at right angles with the stem, and the upper part vertical and parallel to the stem, so that the ends of the branches are all at the same height, thus ensuring an equal distribution of vigour throughout the tree, and rendering it impossible for one branch to assume an undue condition of vigour at the expense of another. I can confidently recommend these trees for kitchen gardens, especially where space is much limited, for although necessarily kept closely pruned and confined to a given space, the crop of fruit has gradually increased in bulk with the growth of the spurs from a few dozens to the very satisfactory maximum of two or three bushels on each tree.

I submitted an example of this mode of training some years ago, and the method continues so satisfactory that, with the object of impressing its advantages on old readers and presenting its claims to the attention of new subscribers, I am sure the figure may be usefully reproduced.

As a matter of taste, I must own to a preference for pyramids around the quarters of a kitchen garden; but in very small gardens stern necessity compels a close attention to a rigid economy of space, every foot of ground being so precious that espaliers of palmette verriers should be hailed as a decided boon. They hardly ever exceed a couple of feet in diameter, and it should not be forgotten that every yard in length of an espalier 5 feet high gives 10 square yards of the surface of fruiting spurs fully exposed to light and air, which is more than can be said of any other method of training. If necessary, crops of dwarf vegetables can be grown near the espaliers without detriment to them, the high culture requisite for the production of good vegetables tending admirably to keep the espaliers safe from exhaustion.

Of the Apples which I have tried as palmette verriers Golden Russet makes a handsome tree, perfectly healthy, the spurs well set with blossom buds now, and bearing a moderate crop of handsome fruit last year. The fruit is now in perfection; it is crisp, yet soft, sweet and well flavoured, and is certainly much more juicy than its description in the “Fruit Manual” led me to expect; it is worthy of a prominent place among our best winter dessert Apples. Golden Reinette has suffered so much from canker that I must not recommend it, and yet its fruit is so handsome and good withal, that it should have a place in deep rich soil. Pine Apple Russet, though neither attractive in form nor colour, is a most delicious Apple. The fruit was above medium size, and was at its best in October; it is singularly juicy and sweet, very richly flavoured and refreshing. It makes a fine tree with stout robust branches, and although it comes slowly into fruiting, I regard it as an indispensable sort worth waiting years for. Golden Pippin makes an excellent espalier, and I value it for its intrinsic worth even more than for old associations. The tree is healthy, and had an abundant crop of the handsome little rich yellow fruit. Pine Golden Pippin has become a fine healthy tree, its ruddy bark glistening with health, and its branches sturdy, stout, and strong, having spurs of proportionate vigour well set with buds. The fruit is handsome in form, of a bright golden russet, and is very juicy, sweet, richly flavoured, and has a pleasant refreshing acidity; it is not small fruit, but is of a fair medium size and is in use now. Pearson’s Plate is an equally fine tree, having a moderate crop last year, and abounding with promise for the future. The fruit is very handsome and keeps well; it is now apparently at its best, and will doubtless continue good for another month or two. The flesh is firm, sweet, and crisp, and the flavour is excellent. Cox’s Orange Pippin is an espalier of remarkable size and vigour, but it has, strange to say, borne very little fruit as yet; while the pyramids numbering from one to two dozen have had plenty of fruit. I must therefore reserve my remarks about its fruit for the pyramids.

Reinette Van Mons is a fine tree, but I am sorry to perceive traces of canker upon the spurs. The fruit is not handsome, but its delicious flavour makes us forget its poor appearance. It is an excellent winter sort, keeping well, and there was an abundant crop of it. Melon Apple is a healthy tree of moderate vigour, but with clean growth, which comes slowly into fruiting. It had an abundant crop of fine fruit, much of it above medium size. It was in use throughout December and is still good; the flesh is very juicy,

erisp, and tender; very sweet and of delicious flavour. There is however considerable difference in it. Fruit fully exposed becomes tinged with crimson, and is invariably good; but that which is much shaded by foliage remains a greenish yellow, and is decidedly inferior in flavour. It is the best American Apple I have tasted, and I regard it as indispensable. Cockle's Pippin is a useful late dessert fruit, keeping well. The flesh is firm, juicy, sweet and pleasant-flavoured, but not rich. The tree is a good specimen, quite healthy, and it had an excellent crop of fruit. The growth of Cornish Gilliflower is somewhat slender, but is quite healthy and of a peculiar dark brown hue. It had a few good fruits of delicious flavour. The fruit keeps well, and is said to be good till May. Adams' Pearmain is a fine espalier, which came into fruiting before any of the others, and always has some fruit every year. The peculiar shape of the fruit renders it easy of recognition, but its flavour is quite second rate.

It will be seen that the foregoing are all dessert fruits, to which I confined the espaliers, as I have only a few trees of that form; but it by no means follows that kitchen sorts cannot be so grown advantageously. All free-cropping sorts are especially suitable for it, and of such I may select Keswick Codlin, Cellini, Duchess of Oldenburg, Warner's King, Calville Malingre, Borovitsky,

Golden Noble, Winter Hawthornden, Fearn's Pippin, and Nelson Codlin.—EDWARD LUCKHURST.

BLUE ROMAN HYACINTHS.

I HAVE no idea of the origin of the blue Roman Hyacinth, and waited last week before replying to your correspondent, thinking that some of your readers would have furnished information on this point. In my previous notes I gave the plant the credit of producing flowers suitable for cutting, so we are agreed upon that point. Any fragrant flowers produced during the winter months are invaluable, especially for those who grow them for sale; but I think this Hyacinth will not attain the popularity that the white Roman has. Where flowers are required not only for cutting but for decorative purposes in pots, both for the conservatory and dwelling-rooms, those that can be used for all purposes are doubly valuable; but for decoration in pots the blue Roman is straggling and useless—unless Messrs. Jones & Sons have some secret in growing them to keep their foliage dwarf. The Editor did not state if the specimen sent would prove serviceable for decoration. I have not found them of the same use as the white variety except for cutting. If useful for turning out of the pots and packing

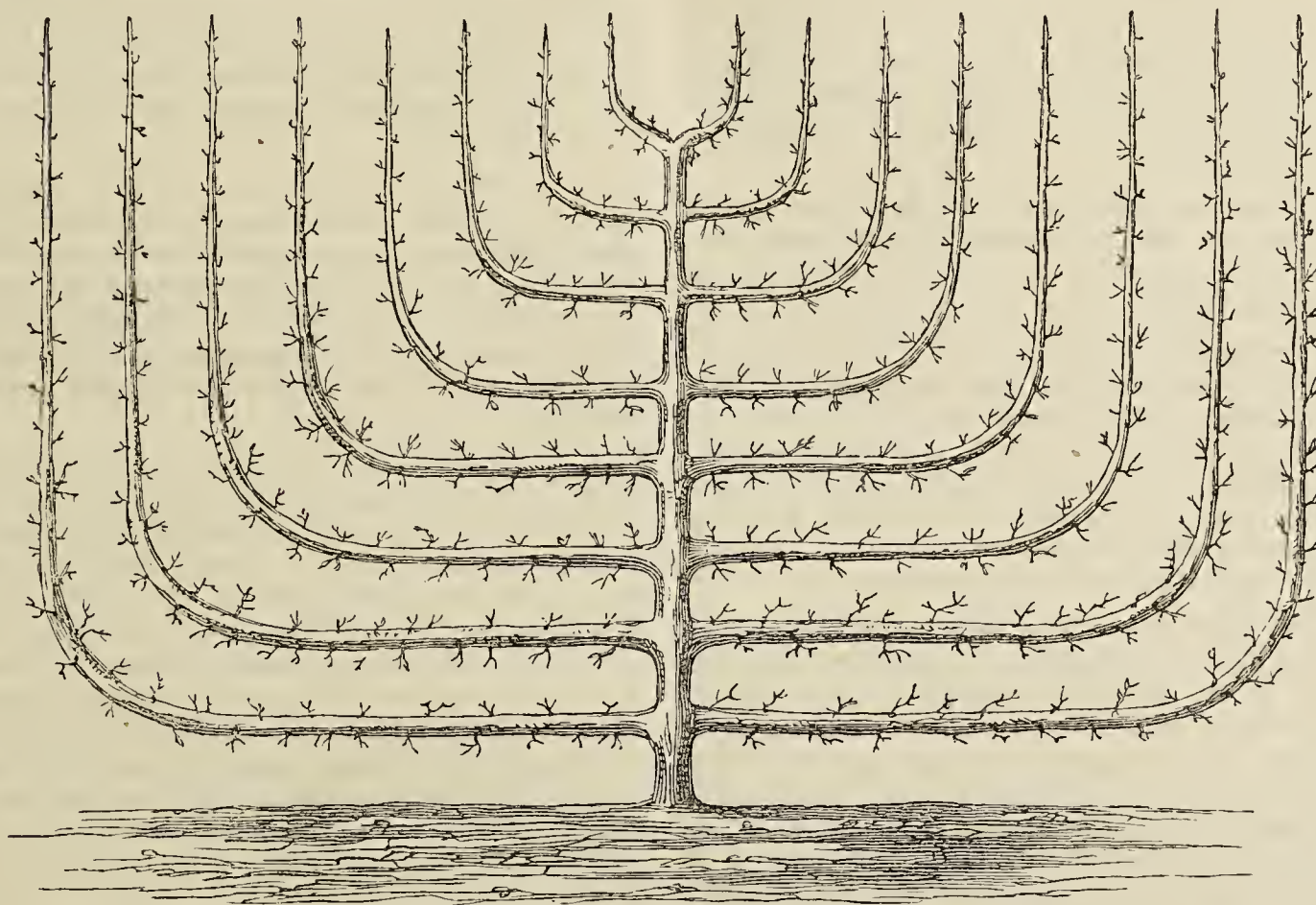


Fig. 20.—PALMETTE VERRIER.

into baskets that have to be filled with flowering plants, in the same way as the white variety is employed, I should have recognised its worth. On the contrary its long foliage is straggling and unsightly. For growing in pots *Scilla siberica* far surpasses it in compactness, neatness, and beauty. Messrs. Jones & Sons say when I can advance something better they will discard it. I have no wish that they should do so, and am pleased to find it proves of service to someone.

The bulbs of the large-flowering Hyacinths, such as Charles Dickens, Grand Lilas, and others that are forced, and the bedding kinds that flower outside, are laid in soil until they are properly ripened, and then early in the season packed thickly together in pans and boxes to be in due time forced into flower. These prove useful for cutting and placing in baskets and vases. They can be had in flower by Christmas. These bulbs are often thrown away by many, but are very serviceable to us, and what are not retained for this purpose are planted out in the borders and yield flowers for cutting about Easter for church decoration. Nurserymen are only too glad, as a rule, to dispose of the small bulbs amongst the bedding varieties for a low price; and the small spikes are serviceable for associating with the scarlet, pink, and other varic-

ties of the Duc Van Thol type of Tulips, while the larger bulbs can be retained for flowering in plant houses.—CULTIVATOR OF BULBS.

[We shall shortly publish some notes on Roman Hyacinths. Although the foliage of the plants sent by Messrs. Jones was not so sturdy as the white Roman Hyacinths, yet the pot containing thirty spikes of flowers would have been suitable for a conservatory. The leaves ranged from 9 inches to a foot in length, and the flower spikes from 10 to 14 inches. The chief value of the variety, however, appears to consist in affording flowers for cutting.—ED.]

PROPAGATING THE HOLLYHOCK.—Provided old Hollyhock plants were potted in the end of autumn, a good supply of cuttings will be ready for taking now, inserting them singly in small pots. If a little bottom heat could be given without artificial top heat, that would be the best treatment to give them; but such conditions are not to be had in all gardens, and therefore a good plan will be to keep the cuttings in a cool house covered with something to keep evaporation from the foliage at as low an ebb as possible. The succeeding crop of cuttings will be most safely managed by splicing

them on to pieces of healthy roots, then potting singly in a light compost. A very slight bottom heat is necessary for success, but the top growth should not by any means be allowed to be drawn in a warm atmosphere. In both cases, where root-action has commenced, the plants require to be shifted on into larger pots of 5 or 6 inches diameter, and kept growing very slowly indeed. Loam and cow manure, one to three, suits perfectly for potting with; and the soil, if in good condition, can hardly be too firmly rammed down.—(*The Gardener.*)



WE learn from the annual report of the PELARGONIUM SOCIETY that financially the proceedings of the past year have been very satisfactory, a balance of £41 to the credit of the Society being announced. A list of the varieties of Pelargoniums certificated during 1881, with the names of the raisers and exhibitors, is given in one portion of the report, also the names of the prizewinners at the Show held in June. The annual Exhibition for 1882 will be held in the gardens of the Royal Horticultural Society, Tuesday, June 27th, and certificates will be awarded at the meetings of the Floral Committee, June 13th and 27th, and July 11th, when new varieties in all the types of the Pelargonium family may be submitted.

— THE Committee of the BROCKHAM ROSE ASSOCIATION have, we are informed, accepted the invitation of M. Rohdo Hawkins, Esq., to hold their Show at Redlands, The Holmwoods, on Thursday, July 6th, 1882.

— "R. P. B." writes—"Would any of your readers who have experience of the undernoted plants state their opinion of their merits in the Journal? Pelargonium Crimson Vesuvius, its value as a bedding plant, and more especially as a winter flowerer; also name any Pelargoniums of first-rate merit for winter flowering, placed in commerce during 1880-81; the value of Bouvardia Alfred Neuner as a free-flowering variety compared with Vreelandi; and the value of Heliotrope White Lady for winter?"

— THE umbrella trade (according to the *Scientific American*) threatens the existence of the PIMENTO (ALLSPICE) PLANTATIONS OF JAMAICA. It was shown by an official estimate made at Kingston last autumn, that more than half a million umbrella sticks were then awaiting export to England and the United States. These sticks were almost without exception Pimento, and it is not surprising that owners and lessees of Pimento walks are becoming alarmed at the growth of a trade which threatens to uproot, in a few years, all the young trees. The export returns for the last five years show an average of two thousand bundles of sticks sent out from Jamaica annually, and the returns for the first three quarters of 1881 show an export of over 4500 bundles, valued at 15,000 dols. Each bundle contains from five to eight hundred sticks, each of which represents a young bearing Pimento tree.

— "FOR some time past," observes "L. D. W.," "we have been troubled by RABBITS ATTACKING THE PYRETHRUMS. I did not think they would commence their ravages upon these plants before their tender growths appeared above ground, especially during an open season like the present, when there is abundance of other food. Last season they troubled us when the growth was advanced, but after we syringed the plants with paraffin oil diluted with water they discontinued their attacks. I have again adopted the same preventive measure, and it has proved efficacious at present."

— REFERRING to ELLAM'S EARLY SPRING CABBAGE "B." writes—"The Cabbage crop is an important one in early spring

in the majority of gardens, and so far I have not found any varieties to surpass the above. I have now grown it for three seasons, and find it useful both for autumn and spring. Growers will find this variety worthy of a trial, as it proves very hardy and never runs to seed in spring instead of hearting. It produces medium-sized heads, is a dwarf sturdy grower, and turns in quickly. The flavour is all that can be desired. I should like to see whether other gardeners' experience coincides with mine."

— WE are informed that H.R.H. DUKE OF ALBANY, K.G. has accepted the presidency of the Kingston and Surbiton Horticultural Society for the second time. The executive have decided to hold an early summer Exhibition in the spacious Drill Hall, Kingston, on Wednesday and Thursday, May 31st and June 1st, 1882. A schedule of prizes is in course of preparation.

— DURING the past few days THE TEMPERATURE in the neighbourhood of London has fallen considerably, the wind having changed to an easterly direction. In the north of England, especially in Cheshire, Lancashire, and Yorkshire, snow has fallen heavily, but generally with a comparatively mild temperature. In Wales and in Ireland also several snowstorms have been recently experienced. In most districts vegetation is extremely forward, and a period of severe weather now will undoubtedly do much injury, though less, probably, than would result a little later in the season.

— A CORRESPONDENT of the *Standard*, signing himself "BARCLAY," writing with reference to insect pests of the farm, gives his experience of a preventive to the ravages of the TURNIP FLY. He says—"When sowing Turnip seed I used to mix a small quantity of Mustard seed with same; the latter would come into leaf much sooner than the Turnip, and I found that the fly would attack the leaf of the Mustard and leave the Turnip comparatively untouched."

— IN referring to the recent high ranges of the BAROMETER, the Rev. C. P. Peach states that his instrument registered 31.02° on the 18th inst., and sends the following high registers—15th, 30.70°; 16th, 30.90°; 17th, 30.94°; 18th, 31.02°; 19th, 30.98°; 20th, 30.84°; 21st, 30.74°; 22nd, 30.67°; 23rd, 30.56°. The average of a week from the 16th to 22nd inclusive is 30.72°. Our correspondent has seldom observed it above 30.75°; but once, last May, it suddenly reached to 30.84°. Corrected from an altitude of 150 feet to sea level the average would have been 30.90°. "This winter," Mr. Peach remarks, "is a curious contrast to the last. We have not, even in cold N.E. Yorkshire, had more than 10° to 12° of frost; and this week last year, January 23rd it was 7° below zero at Stokesley, where, in my brother-in-law's garden, he hardly had an evergreen living."

— THE financial report of the ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY has been issued, and from it we learn that unfortunately the shows of the past year in that town have resulted in a rather serious deficiency owing to the unfavourable weather that prevailed at the time of the Summer Show. It is, however, satisfactory to learn that "the popularity of the Society and its exhibitions have in no way diminished; the subscribers are continually increasing in numbers, 112 having been added during the past year, and although others have been lost, the Society now numbers 870 members, showing a nett increase of fifty-five over 1880. The Committee have also every reason to believe that had they been favoured with fine weather for the Summer Show, the year would have been marked by the greatest success ever secured by the Society. On the Bank Holiday, during the three-quarters of an hour just previous to the rain commencing, no less than 10,000 persons paid for admission, passing through the gates at the rate of over a thousand every five minutes. The rain coming on heavily, the sale of tickets immediately stopped; but

notwithstanding these drawbacks, it is estimated that over 17,000 persons visited the Show."

AN AMATEUR'S HOLIDAY.

(Continued from page 35.)

THE PINKHILL NURSERIES.

WITH Pinkhill, nearly two miles west from Edinburgh, is associated much of the pleasure I have derived from flowers and their culture. My first acquaintance with it, or rather with the name of the firm, carries me back to boyhood. Its familiar slopes were a frequent resort when the restrictions of city life precluded the practice of what has always been a congenial recreation, and there was imbibed and fostered a partiality for several varieties of flowers for which it enjoys a well-merited and wide-spread fame. What name is better known to Scottish florists, indeed to floral circles everywhere, than that of the genial veteran, Mr. John Downie, still so absorbed in the ardent and successful pursuit of his profession? I but express the sentiments of all who have the honour of knowing him, in hoping that he may yet long be spared to preside with his characteristic unassuming manner over his famous establishment, and to add to the long list of triumphs that have placed the firm of Downie & Laird in the van of floriculture. The urbanity of the worthy chief seems to permeate the whole staff, and this renders a visit to the various departments doubly gratifying. A half-hour's talk with him or his able lieutenants, Messrs. George Goodall and Taylor, among the objects to which they are so devoted is worth more than the perusal of lengthy treatises, and no more capable and willing instructors could anywhere be found.

At any season a visitor to the Royal Winter Garden at West Coates will find much to interest him, and in that extensive and commodious structure and the numerous adjoining houses vast stores of many floral treasures, of the value and quality of which the name of the house is a sufficient guarantee. At a recent visit I was again conducted over these by the experienced and obliging Superintendent, Mr. Glendinning, who now so well occupies the place of the late Mr. McKeith. The extensive assortment of well-set Azaleas and Camellias was a striking feature, with a very large and comprehensive collection of choice Pelargoniums in fine healthy batches at various stages of growth, Verbenas, Ferns, and thousands of other plants that I cannot enumerate. I was last autumn shown a *Coleus* of great beauty about to be sent out, named Lady Macdonald, a worthy successor to Ethel Baxter and the others last issued by this firm. I was delighted with a number of *Gloxinias* with flowers of surprising size, beauty, and texture. About half a dozen of these had been selected, and among them Alice Cooke, Countess of Crawford, and the Hon. Mrs. Walker were deemed of great excellence, and will with others be offered this season.

But I would speak of some specialities of Pinkhill which to me are more attractive through predilection and better acquaintance. Almost instinctively I found my way to the *Phloxes*. No one has done more to aid in perfecting these than Mr. Downie. From the enormous number of seedlings raised annually, an eye and a taste less experienced than his would now be at a loss what to select as deserving a place with the numerous grand varieties he has already raised. One object towards which he has been working is a dwarf habit, and, in some of the new early *Phloxes* especially, this has been attained, while the heads almost equal in size those of the *decussata* section. For my own guidance and the assistance of friends who take an interest in these delightful flowers I noted the names of a few raised in 1880, which will be sent out this spring. Among those of the early class Miss Mima, Mrs. Dalrymple, James Ross, and in the late-flowering section Dr. Hornby, Francis Kinghorn, and Mrs. S. Plummer, will with others be found decided acquisitions.

Still more conspicuous from their bright colours were the great beds of *Pentstemons*, one of the chief features of the nursery. The display of these annually has without exaggeration been styled "one of the grandest sights of the floral world." In an enormous batch of seedlings that had already undergone keen scrutiny about a dozen were marked as likely to come up to the Pinkhill standard. These like the *Phloxes* are proved for two years. I saw the large bed of those selected in 1880, now to be brought into commerce. In their compact dwarf habit, their erect *Gloxinia*-shaped tubes, and their profusion of bloom, another decided advance has been made towards those points to which Mr. Downie has been working. Among them Andrew Sinclair, Henry Cannell, James Black, and Osgood McKenzie will be found of great merit.

I may here remark that, as far as I have seen, the *Pentstemon* is not grown in our Scottish gardens to the extent it deserves.

It is of easy cultivation, and no flowers respond more gratefully to, or better requite, a little attention. It may be easily raised from seed, or, better still, a handful of cuttings can be obtained from anyone having a named collection. In a cottager's garden adjoining my own a bed of these, propagated and tended entirely by himself after his day's labour, attracted last year even more attention than his Dahlias and Gladioli. It would have delighted Mr. Downie himself, whose productions they originally were, and I hope some at least of those who admired them so much have resolved to introduce *Pentstemons* into their gardens.

Nowhere else have I found such justice done to the *Mimulus* as at Pinkhill. Those who have not seen it grown as it is there, in large quantities, of a strain to the perfecting of which special attention has been paid for years, can have any conception of the diversified beauty and charming effect of the extensive beds. The half dozen selected from many hundreds for admission to this year's catalogue will be found to be of the highest excellence. The *Antirrhinum* is another flower to which much attention is given. The large named collection embraces many beauties in selfs and the mottled and striped varieties, while of late years those with light or white tubes and coloured mouths and lips have been much improved. These last possess the recommendation of not running or sporting, to which the pencilled and mixed sorts are so much addicted. Fine additions will be found in *Cornet*, *Defiance*, and *Sparkler*.

Any notice of Pinkhill would be incomplete without a reference to its *Pansies* and *Violas*, with the improvement of which the name of Mr. Downie is indissolubly connected. The efforts which have already resulted in such signal success are being exerted with unrelaxed vigour, and the extent of these can only be realised by a visit to the nursery. The following novelties in *Pansies* are of the very highest merit—Andrew Fox, dark self; Maggie and Novar, white grounds; William Harrey and Lindean, yellow grounds; Mrs. Paterson, Mrs. Forrester, and Mrs. James Cocker, fancy varieties.

Pinkhill has long been noted for its Dahlias. Besides the large collection of the Show and Fancy sorts, my attention was drawn to numerous varieties of the single Dahlia, specimens of which were exhibited at the Edinburgh Show in September last. An extensive assortment embraced the best of the French Gladioli, well grown, and more generally in bloom than any I had met with.

I must not forget the greenhouse *Rhododendrons*, which have long been a speciality here. Of one specimen of the Duchess of Edinburgh, in splendid flower, Mr. Downie seemed especially proud. This, in his own estimation, and on the authority of an eminent English grower of these plants who had just seen it, is probably the finest of the variety in the country. A smaller example of the Duchess of Connaught, of a darker shade, was also in bloom and extremely beautiful. More recently a plant of *R. Falconerii*, nearly 8 feet in height, showed about thirty fine promising buds. The sight of this house alone in a few months would well repay a visit to Pinkhill.

I must now draw these sketches to a close. As an amateur I have avoided dwelling on such subjects as would have been more worthily treated by a more highly tutored hand. In concluding I desire to express my appreciation of the unbounded kindness accorded to me everywhere, and to renew my grateful thanks to all those who have contributed so greatly to the pleasure of my holiday tour.—A NORTHERN AMATEUR.

PAULOWNIA IMPERIALIS IN AMERICA.—"In Tennessee there is hardly any tree with more attractive qualities where it has a good chance to display its peculiarities. It was introduced about thirty years ago. The young trees grow rapidly, with wide-spreading branches, with leaves as large as a lady's parasol, and leaf-stem nearly 20 inches long, making a dense shade. At the age of four or five years it commences flowering, and after that it attracts the attention of every passer-by. The flowers grow on spikes about 2 feet long; flowers trumpet-shaped, exceedingly fragrant, perfuming the air all around; light purple in colour, and appear before the leaves, making the tree a perfect bank of purple. And it is among the earliest of spring. The flowers are followed by seed pods striped like a cotton boll or a guinea egg, and remain all the rest of the season, swaying with every breeze, and in winter produce a peculiar sound, like rattling of hail. The new flower buds in the meantime shoot upwards through the solid canopy of leaves, and are ornamental through the winter."—(*Vick's Illustrated Magazine*.)

HYACINTHS AND SMALL POTS.—In a general way I believe there is economy in employing small pots. Here is an instance. It was

found at the time of potting the main batch of bulbs in autumn that the smallest pots that Hyacinths could be grown in would be of the greatest convenience. Those $3\frac{1}{2}$ inches diameter were chosen, and the result has been most encouraging. When I say the bulbs were potted in the last week of October, and that we had the first spikes fully developed the second week of January, this note may be found worthy of consideration.—R. P. B.

VINE MANAGEMENT.

VINES are accommodating if we follow Nature reasonably in their treatment. The several articles written by your correspondents I have read with much interest; but it is not my purpose to enter into their controversies, I merely wish to give an opinion regarding the cultivation and the general treatment of the Vine, an opinion based on some practice and on very close observation.

The Vine we find so peculiarly accommodating that even success is secured when opposite systems of treatment are practised. On returning to gardening, at which I had spent my childhood's days, a good mother advised, "Follow thy own common sense in gardening and thou wilt succeed." This advice I have many times found most valuable, but still at times I have had to appeal to the good common sense of others; and then my rule has been, when advisers differed in opinion, to choose the system which incurred least labour. Naturally the Vine extends, and health with extension has the best chance of being secured; but as with judicious pruning generally, so we find it is also successful practice to restrict the Vine and so secure a seasonable variety of fruit in the same space.

Mr. Hunter we know grew his monster bunches, his Black Hamburgh being 21 lbs. 12 ozs., and also his magnificent prize bunches when he grew his Vines on the restricted system; and since he has chosen to "let them go," he swept the board of the chief prizes at Manchester. This, I think, ought to satisfy all that in growing Vines our needs ought to chiefly guide.

My Vines are planted 2 feet 9 inches apart, but if I were about to plant now I would have them nearer 4 feet. I have cropped, some gardeners say heavily, but certainly nothing in the way these last three years that some of your correspondents talk of. But regarding the weight of crops perhaps it is not without import, my Grapes being all weighed. I have many times proved that gardeners are bad judges of weight and also of value. Vines planted 2 feet 9 inches apart are, I consider, too close for reasonable cropping—that is, to allow sufficient foliage in the roof to finish the fruit. I have found that by letting the border be covered with foliage by allowing laterals to extend from the stems of the Vines I have all the extension necessary; but were my Vines 4 feet apart, then this lower extension I would not consider a necessity to practice, as foliage evenly distributed over the roof is undoubtedly in its right place.

That Vines make roots corresponding to the extension of shoots may, I think, be taken for granted; and that Vines will have healthy foliage, healthy fibrous roots, and finish good Grapes in response to fair treatment including restriction may also, I think, be taken for granted; but to let them extend and then to cut them back close, is treatment in which many will fail, and it is unnecessary.

Vines properly attended to cannot become gorged; but there is the danger that attends unrestricted growth where they are treated on the short-pruning system. The rods of Vines that are planted close and allowed to extend 20 feet must produce some leaves that are never properly exposed to the light, and such rods are strong and require corresponding heat to ripen them, which many growers do not possess. There is the great danger that attends this system. The crowded roof seriously risks the supply of ripened fruit buds, and the more so where heat is not at command. To let them grow I admit it is a successful way to bring back gorged sickly Vines to health, but such are not the result of sound treatment, and these excessively long canes past the bunch neither add to the size of the berries, to the colour of the fruit, nor to the quality.

My plan is, when Vines are healthy to keep them healthy. I hold it to be most important to only give them the quantity of liquid supplies, either water or liquid manure, they can take; no more. The Vine resents too much, and this is seen by sickly foliage, unripe wood, and moderate Grapes. Too much liquid acts like poison to the roots, and the border becomes sour, and all healthy fibrous roots disappear. The Vine requires manure, but it is far better to err in giving too little than too much. In these northern parts it requires artificial heat, but it is far better here also to err in giving too little heat than in the giving too much; but air and light are necessary. If lightly cropped you may ripen Grapes without either—that is, in a fashion; but without air, light, and heat it is undoubtedly almost impossible to perfect

wood sufficiently to secure fruit the following year. On this year's treatment next year's crop depends.

All fruit grown indoors, we must remember, is grown artificially; and being thus deprived of the aid of healthy breezes and of the helps given by insect life to the necessary distribution of pollen, necessitates our artificially aiding them. But when fruit buds are fully perfected the previous year the question of fruit setting is a matter that need give little concern. Grapes of all the varieties I know, if necessary, can be grown successfully in one house, and with the artificial aid they will all set at any reasonable heat; but if the wood be not ripe then you have the certain forerunner of failure, such as non-setting, stoneless berries, shanking, no matter what be the treatment at these stages. To young gardeners especially I say, Think of this; and, though they have no need to throw science and scientific learning from them, they will find that observation and industry guided by good common sense are all that are necessary.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street.*

FLORIST FLOWERS—THE GLADIOLUS.

YOUR excellent and always instructive correspondent, "D., Deal," (page 56), discussing horticulture in the past year, generally paints the picture in bright colours, as I think he should, and everyone who has seen the famous Show at Manchester cannot well think otherwise. Yet I do not quite agree with your correspondent on one point. As far back as my horticultural reading takes me, "D., Deal," has been famous both as a grower and contributor on florist flowers, but especially on the Gladiolus he has been accepted as an authority. Now, if I remember rightly, he has stated that he saw the famous first-prize collection of two hundred blooms exhibited by the Messrs. Kelway at Manchester, I believe almost exclusively Langport seedlings, and if this is so they must have excited his admiration as an enthusiast. If this supposition be correct, how can "D., Deal," say "the Gladiolus still remains in the shade?" Its culture may not be extending as rapidly as its admirers may wish, but this may be remedied by making its beauty and superior merits better known, and even more so by plainly stating how easily reasonable success in culture can be achieved. No doubt your correspondent has often done this, but there are new readers, and what was considered established maxims in its culture are now questioned by undoubted authorities. For instance, French seedlings have been found by Mr. Douglas almost worthless a second year, and, if I understand rightly, he would keep up a stock by a continued succession of home-raised seedlings.

Hitherto it has been accepted as the most judicious and safe course to take up valuable hybrids of Gandavensis when the foliage has died, and store them for the winter; but this, too, has been questioned, and more satisfactory results are said to have been achieved, even such a winter as the last, by allowing them to remain in the ground. Then they are said to "degenerate." For my part, though I may have lost a small fraction of my limited collection within the last few years, it has risen from scores to hundreds. No doubt they were of the hardier and cheaper kinds in many cases, of which Meyerbeer and Jupiter are types among the red, and Shakespeare and Arundel among the white; but Claribel, Cleopatra, and Marguerite (not particularly hardy) did remarkably well too. As I have procured such certificated seedlings of the past year as Cherub, Mr. Thornton, Sir Stafford Northcote, Lord Newport, Vicomtesse Glentworth, and some others shown by Mr. Kelway in different parts of England, and as I intend to submit them to the same treatment as the cheaper kinds above referred to, I shall be in a better position next year to speak of degeneracy among the very best hybrids.

I think I can state as an encouragement to young growers the simple and generally accessible system of culture I find so satisfactory, and to which other readers may kindly add their experience; such splendid florist flowers should have their merits constantly reiterated. I plant in a mixed border each side of a central avenue facing south. It is upwards of 4 feet wide, and probably 3 feet deep; soil, good loam constantly top-dressed with old decayed hotbed and other manure. So much for position, soil, and manure. I, however, rely very much on liquid manure and soot water, especially after the spikes are formed, but even more on the full maturing of the foliage, which means also maturation of the corm. This is to my mind one of the antidotes to degeneracy. Early planting and surrounding the corms with sand, and planting less than the accustomed depth, are points I also much rely on, though others differ therefrom.—W. J. M., *Clonmel.*

CHRYSANTHEMUM MRS. CHARLES CAREY.—In the Journal of the 19th inst. Chrysanthemum Mrs. Charles Carey is mentioned as flower-

ing at the end of December. Am I to understand that this is the natural time of the flowering of this variety, or that a special line of culture as regards stopping, &c., has to be followed? Any information on the subject will much oblige.—S. L. BOURCHIER.

BEGONIA SOCOTRANA.

BEGONIAS are now largely represented in gardens by a great diversity of handsome forms of very distinct types, and some, the tuberous section for example, are becoming more popular every year. The species of which a woodcut is here given to some

extent combines the characters of several types as they are popularly recognised in gardens, yet it is unquestionably one of the most distinct and pretty of recent introductions. It appears to be readily increased, and will soon become well known and appreciated by cultivators. The figure faithfully indicates the form of the leaves, which is one of the chief distinguishing marks of the plant. They are nearly circular in outline, thick, fleshy, bright green, and with the petiole inserted in the centre of the leaf after the manner of the *Nelumbiums* on a smaller scale. The flowers are very neat in form, rounded in outline and regular, the colour being a very bright rose tint, particularly attractive in the



Fig. 21.—BEGONIA SOCOTRANA.

dull months of the year when the blooms are freely produced. A temperature intermediate between that of a stove and a greenhouse is required, with a compost of light turfy loam, leaf soil or peat and sand, well draining the pots, and placing the plants in a light position.

This is one of numerous discoveries of Professor J. B. Balfour in the island of Socotra during his recent expedition, and the stock has been acquired by Messrs. Veitch & Sons of Chelsea, where for some time past the plants have been flowering profusely in a warm house, and one of these is represented in our woodcut. Plants were exhibited at several meetings of the Royal Horticul-

tural Society last year, when it was honoured with a first-class certificate.

VINES AND PLANTS.

YOUR correspondent "WISTFUL," at page 52, wishes for others' experience in reference to the practice of growing plants for winter-flowering in vineries. Having received many useful hints from the Journal, I send a short account of my practice here.

The garden is small. All the glass structures I have, except a small warm pit and some wooden frames, is a lean-to house about

30 feet long and 14 wide, with front and back stage, and shelves along each end. The house is divided into two compartments. In one there is one Muscat and two Black Hamburgh Vines. This compartment I keep at a temperature of from 50° to 58° according to the weather. The front stage is occupied with a selection of Zonal Pelargoniums, grown by the sides of the garden walks expressly for winter. The shelf at one end has Roses in pots, and at the other end Perpetual Carnations grown similarly to the Zonals, which in the light position and temperature named have flowered freely all the winter, and will continue to do so for some time. The back stage is occupied with a standard Rose or two, Heliotropes, Callas, and the plants usually met with in such structures. The Vines start in January, and the Hamburgs are ripe at the end of June. The border is inside each compartment, and the Vines are allowed each year a moderate crop of about 18 lbs., the Muscats rather more.

In the other compartment there are three Black Hamburgh Vines, which are retarded to succeed the others, and by liberal applications of weak liquid manure finish similar crops. The front stage in this house is occupied by Primulas followed by Cinerarias, and the shelves contain Cyclamens, Hyacinths, and herbaceous Calceolarias. This compartment is kept at a temperature of from 42° to 52° according to the weather. I find that the temperatures named do not unduly excite the Vines, which ripen their crops in September and usually last till Christmas. I have had Camellias in both houses since November. By training the laterals rather thinly and allowing as much growth past the bunches as possible, I find the Vines are greatly benefited, and it also enables me to grow Tuberous Begonias, Fuchsias, and Ferns in summer. But we have our best display during the winter, when they are most appreciated. We are rarely without a Rose or Carnation for a button-hole, and plenty of Pelargonium trusses. In addition to the plants named, I find Bouvardia Vreelandi, Cytisuses, and double Primulas particularly useful for cutting in winter.

If you think a few notes on Zonals or Carnations would be useful, I will send them with varieties I find succeed best for winter.—W. WALLACE, *Yardley*.

[Such notes as you can send will be very acceptable.—ED.]

SOME SEXUAL PECULIARITIES OF PRIMULA SINENSIS.

ANYONE who has experimented with crossing different forms of the Chinese Primula cannot fail to have been struck with certain peculiarities which invariably follow particular modes of fertilisation. I have often seen it stated that among Primroses in general the long-styled and short-styled forms appear in nearly equal numbers. Growers of Chinese Primroses must have been struck with the fact that, in this case at least, the general rule does not hold true. Sometimes nearly a whole batch is short-styled, at other times as nearly wholly long-styled. I have observed that seed from a certain seedsman who saves his own seed belongs to one form, while that from another belongs to another form. A year or two ago, before saving seed, I imagined that such was one of the peculiarities of the particular strain, though these are not quite so numerous as those not in the secret might suppose.

A year or two ago the seed from a respectable firm produced plants among which there was not one of the short-styled form. Determined to raise seed scientifically—that is naturally—I procured a few flowers of the short-styled form from a neighbour, and with the pollen from these short-styled flowers ours were fertilised. Those operated on set a good crop of seed, which in due time ripened, was sown, and produced plants which, when they flowered, produced flowers mostly short-styled. Referring to notes made at the time I find that 67 per cent. were short-styled, the remaining 33 being of the opposite form.

Again, the long-styled forms were fertilised with pollen from the short-styled, and when the resulting plants flowered produced a still greater percentage of short-styled flowers. Thinking this result rather curious I fertilised some plants of the long-styled form with pollen from long-styled flowers, and some short-styled flowers were fertilised with the same. The resulting plants were similar to their parents; the seed from the long-styled forms producing, almost without exception, long-styled flowers, and the short-styled flowers giving birth to short-styled flowers. At this point the experiments were stopped.

Seed from self-fertilised flowers—and this is the too general way practised by ordinary growers—is not only sparingly produced, but does not result in such healthy offspring. Indeed the fact, as pointed out by Darwin and others, is pretty fairly estab-

lished, that cross-breeding tends to produce vigorous offspring. This result, cross-breeding, has been secured for Primroses naturally, for in nature we do not suppose that a single flower is self-fertilised, or even fertilised with pollen from the same form. At all events, pollen from short-styled and long-stamened flowers is prepotent when applied to the stigmas of long-styled flowers.

There seems to be a rule that the length of the tubes which pollen grains produce depend, to a great extent, on the length of the stamens from which the pollen was taken. Thus pollen from short-stamened Primroses when applied to forms similar to that from which it was taken—i.e., long-styled—is mostly useless because of its inability to produce tubes long enough to reach down the long styles to the ovaries. That a few grains occasionally do so we are perfectly aware, otherwise fertilising Primroses by pulling the tube over the stigmas, and so dusting them with their own pollen, would always fail; whereas it, as too many are aware, occasionally partially, seldom fully, fertilises the ovules; but the resulting offspring are usually weak.

Why weak pollen applied to long-styled forms of Primroses should generally fail does not seem as wonderful as the opposite fact, that stronger pollen from long stamens (thrum eyes) applied to short-styled pistils—that is, those of their own form, should also fail. In this case it seems that the pollen tubes either go past the ovules altogether or rupture them, and any that successfully fulfil their office do so by reason of their weakness; this also resulting in weak progeny.

Now Nature never goes wrong in this matter. She provides that the flowers that have long styles shall have short stamens, and those with short styles shall have long stamens. A wandering bee alighting on a long-stamened Primrose, in thrusting his proboscis down the tube of the flower in search of the honey-filled nectary, smears, all unintentionally, his head with pollen among the stamens which cluster, and, as the florists maintain, ornament the mouth. Possibly the next flower he visits has the pistil protruding from the tube, and as he reaches down to find the honey he dusts the stigma with pollen and secures its fertilisation. Not only so, he this time smears his proboscis among the stamens which lie near the bottom of the tube, and arms himself with pollen just suited to fertilise the short pistils which any interested reader will find stand inside the tube at the very same height as the stamens in the long-styled forms.

A wonderful arrangement, for should any plant be produced the stamens or pistil of which had not corresponding stamens and pistils in other flowers, it would either fail to leave offspring at all, or leave it of such a weakly nature because of the too close interbreeding that, in the struggle for existence, its race would go to the wall. Were it to appear among men's productions it might be kept living by artificial modes of cultivation, but even then its race would be comparatively short. It would then be fertilised, if fertilised at all, unnaturally, for crossing is not less natural than necessary. In-and-in breeding never fails to weaken, though that result may not be apparent just at first. Hence Nature, whether she provides dimorphous plants as in the case of Primroses, plants bearing male and female flowers as in the case of the Melon, or on different plants as in the case of the Aucuba, or merely makes the carried pollen prepotent as among Peas and Cabbages, always aims at cross-breeding in order to avoid the weakening influence of self-fertilisation.

These remarks may serve to arouse our younger readers to inquire into the subject of seed-raising. Many as are the hands engaged in raising new and if possible improved forms of flowers, fruits, and vegetables, there are not enough, and if one out of every ten gardeners were to try and improve something, in ten years hence we would make an advance not dreamed of. Much effort is thrown away because much is wrongly directed. Even in the matter of raising Primula seed the vast majority, instead of helping Nature, fight against her. Not many raise their own seed—they have tried and too often in vain. Let them try again on the lines here laid down, and if they provide conditions otherwise suitable we will guarantee the same success among their Chinese Primroses as Nature secures for them without their own intervention among their hardy Primroses outside.—SINGLE-HANDED.

SILKWORMS AND SILKWORM-REARING.—6.

THE eggs or grain of the silkworm (*Bombyx Mori*) pass through various changes of colour between the periods of deposition and of hatching. When laid they are bright yellow; this alters to brown in about a week. Should they remain yellow or become paler there is sufficient proof of their unproductiveness. Brown gradually becomes a slaty grey, this hue remaining through the autumn and winter. The first intimation that the process of hatching has commenced in the spring is given by another

change, the eggs then appearing bluish, this tint getting paler while the worm grows within, until at last the shell of the egg looks ashy white, exhibiting, however, a black spot and a curved patch of brown, the former being the head pressed against the shell, the latter being the body which is coiled round. The egg-shell does not crack like the chrysalis containing the moth, but a hole is bitten by the young worm in one side just large enough to allow of its extrication; then, having emerged, it secures itself to some object by a thread, reposing a little ere food is sought.

It is doubtless true of all caterpillars in the Lepidopterous order that a considerable number die during their infancy—the

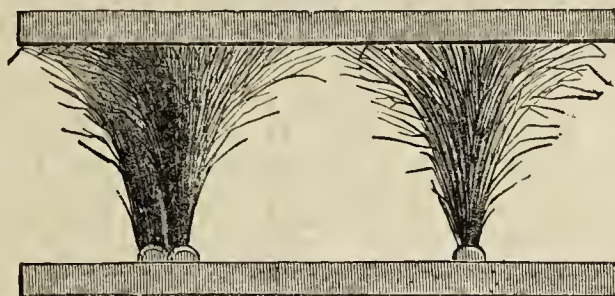


Fig. 22.

majority indeed, hence when newly hatched the silkworm requires particular care. Under the management of those engaged in silkworm establishments a greater proportion, I should say, escape what might be called "the perils of early weakness" than in a state of nature, yet their artificial life originates, as we shall see hereafter, new and troublesome diseases. The process of nurture amongst the silkworm breeders of France begins even at the egg, for it is needful to have the worms "timed," so to speak, in order that they may keep steadily together in batches during their successive changes. I have found, and others also, that when left to themselves there is an uncertainty in the appearance of the broods from our English eggs apart from the seasonal influences, and the same circumstance would probably occur in France. Therefore the breeders, at a suitable time, bring out the eggs, which have been through the winter preserved in folds of wool and kept moderately cool, beginning by exposing them to the air for a few days in a room with south aspect. From time to time the windows are opened a little, then the fire is lighted, though the layers of eggs are not allowed to approach closely, the temperature being carefully raised about 2° a day until 25° Centigrade is reached, which suffices. Incubating boxes specially

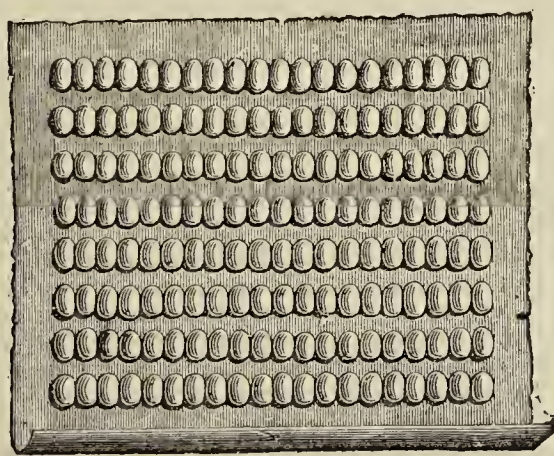


Fig. 23.

contrived are among more recent improvements. A few worms come forth as pioneers of the rest some hours before the general hatch, which occurs on the second and third day from the first appearance of worms. Stragglers afterwards are seldom preserved. The worms are then formed into two divisions as soon as they have been removed from the eggs, corresponding to the two principal hatches, this removal being accomplished by placing above the eggs twigs of the Mulberry with young leaves upon them. Searching for food the silkworms soon begin to travel and mount on the twigs, by means of which they can with ease be conveyed to the trays or tables where they are to be reared.

Those who have tried to rear any species of caterpillar are aware of the trouble there is to get the creatures transferred to fresh food from that to which they are clinging. On a small scale it is common to shift silkworms by the fingers, or a camel's hair brush when they are very small, but this has serious disadvantages if many thousands of them are being reared. For a

good while similar plans were followed in the French establishments; now-a-days labour is economised, and the worms are kept healthier by letting them make the necessary change for themselves. This is dexterously managed as follows: Upon the tables where the worms are feeding nets are laid containing fresh supplies of leaves, such nets having meshes of varying sizes, but allowing space for the worms to pass through. By the sense of smell, or by some sense unknown to us, they speedily detect the new provision, and climb to it from the dried leaves below. It is a simple matter then to lift the silkworms and the nets above which they have crawled, clear the tables, and replace the net that contains them and their food. There is thus always a net beneath the worms: the old one is of course removed with the stale food. Ordinary nets of thread were generally employed until the introduction of the paper nets suggested by M. Robert, through which also the separation of worms from each other that have during their growth come to vary somewhat in size can be admirably effected. It has been usual in these establishments to cut up the leaves of the Mulberry into small pieces while the worms are small, but I doubt if this measure is really necessary. Obviously the drying of the leaves must be hastened in warm weather.

Fresh leaves are supplied to the worms during the first age six or eight times a day, between five in the morning and midnight. The hours of darkness, however, are not to silkworms a period of entire inactivity, since they will eat then occasionally, and yet in the daylight appear to be sleeping at intervals. When they are approaching the first moult or change of skin the attendants place for them twigs and boughs, which will afford them safe resting places until this has been accomplished. A similar plan is pursued at each of the moults, all disturbance of the worms being avoided, especially during the last one, when not a few die off through weakness. While this is in progress it is recommended to keep the room where they are rather warm, to facilitate the worm's efforts to free itself from the skin. As the worms get larger at each moult the feeding becomes less frequent, though more leaves are given for each meal. As the silkworms near maturity free ventilation is maintained, and they are allowed more space lest they should annoy each other. In preparation for the "ascending season" sprigs of Heather are placed upon the tables at short distance apart (fig. 22), or twigs of dry wood may answer the same purpose. In a batch or rearing that have kept well together it is found that all the healthy ones spin up within about thirty hours, the later ones are placed by themselves as questionable. Amongst the cocoons placed in the Heather there will always be some that are unhealthy; good cocoons are recognised by their regular shape, the hardness of their ends, and their weight. Weight furnishes also a means of separating male from female cocoons, for those belonging to female moths are always the heavier. If it is intended to preserve the moths in order to obtain eggs, the cocoons are regularly fixed upon sheets of paper by means of paste (fig. 23), so that each moth on emergence can grasp the base of a cocoon in front.—J. E. S. C.

THE CARNATION.

[Abridged from a paper read by Mr. George Rudd at a meeting of the Paxton Society, Wakefield.]

AFTER alluding to the early history of the Carnation and its classification and character, the lecturer observed:—

Parkinson in his "*Paradisi in Sole Paradisus Terrestris*," (1629), divides Carnations into two classes. One he calls "the goodly old English Carnations;" the other, which was of a smaller size, he calls by the name of "Gilloflowers;" no doubt the striped or spotted varieties. Of Carnations he enumerates nineteen, and of Gilloflowers thirty named varieties, whilst in the year 1676 John Rea had 360 sorts of Carnations. There is no doubt a great portion of these were selfs, but still the simple flakes would be then grown as now. The Picotee, however, is the production of later years, and has been brought to a high standard during the last thirty years, as looking over my list of thirty years ago only one variety of Picotee is grown by me which occurs in that list—viz., Mrs. Dodwell, which is a fine flower and still one of the best in its class. In its early days the Picotee was splashed, spotted, and had broken or short stripes which ran through the whole length of the petal; in many cases, too, the edges were serrated, but now it is rare to see a spot or bar on either heavy or light-edged flowers. It was only during the last thirty-five years that the Picotee became so much refined and distinct as to perpetuate itself a pure Picotee. The late Mr. Richard Headley of Stapleford, a most enthusiastic florist, used to speak of a pod of seed which he sowed expecting only Picotees from it, but both Carnations and Picotees were produced. One of the Picotees was

exhibited for a number of years, and was one of the best flowers of its day. The Carnations in one or two instances were fair flowers.

Although the Carnation grows wild in England, yet the finest of the cultivated varieties require shelter in our uncertain climate. They are generally grown in pots, where they are more under the control of the gardener than in the open ground; yet I have seen them grown in the north in the open as fine as in pots, and equally as fine flowers were raised when grown in this manner. I tried the same plan myself, acting under the advice of my friends, planting the Carnations out in September in raised beds; but only one or two plants lived. The result of my unfortunate experiment prevented me trying to grow them again in the open air. The reason of my failure I think was caused by the sulphur which falls thickly on the hill where I reside, and although the plants may withstand it when in a growing state, yet when at rest in the winter months they cannot do so.

In my early days of Carnation-growing soil was considered the great desideratum, and I have known it brought from good distances. I recollect once carrying a bag full seven miles before the railways were constructed. The result was that I had a sore back for days, which I might have avoided if I had looked round nearer home. At present I obtain a far better soil within half a mile of my residence. Any soil will suit the Carnation that will grow good Wheat, giving a good proportion of straw; in fact the only kind I have seen unsuitable for the purpose is light sandy soil, as the plants then make no increase. The light soil employed by the late Chas. Steward, Esq., of Bishopthorpe, York, is an instance. He was always able to have early blooms, frequently exhibiting with Mr. Charles Turner and other southern growers, but his stock of layers was always small. The soil I employ is from old pasture land which contains part fibre, but not so much as to make the compost light. As to the compost to be used, the following answers well with me—two barrowfuls of sound loam, one barrowful of decayed manure from an old hothed, and one-third of a barrowful of burnt refuse—char I always call it; in places where soil is scarce, a portion of the last year's soil in which the plants have been grown may be used again. This is all mixed in the autumn and frequently turned during the winter months, covering with mats or some other protection so as to prevent heavy rains washing the salts out of the compost.

Amongst old growers another thing that was considered necessary to secure a fine bloom was the pots, which were 12 to 13 inches in diameter at the top and the same in depth, in which they would only place two layers, and sometimes only one. These pots were filled with compost to the top, and in dry seasons a good bloom might be had. Generally, however, and particularly in wet weather, the soil became stagnant, the white in the flowers being impure and the striping broken.

The old growers were very reticent, and reluctant to give information to young hands. When I made my first essay in growing Carnations I paid a visit to an old veteran. I made my purchase of plants, some twenty to thirty pairs; after I had paid for them I asked what compost I was to use, also what kind of pots, how many plants to place in a pot, &c. For the pots my tutor pointed to the large size for a pair, recommending larger if they could be had. For soil I was shown a heap which must have been obtained from some foundation in digging for a building; this or similar soil I was to have and to use no manure of any kind, or the flowers would run. We had been removing an old fence at that time, and the soil there very much resembled that shown me. I told my teacher, and he said it was just what was needed. Briefly, I grew the plants in the large pots filled with the exhausted soil; only two plants flowered, and one had a small shoot attached not sufficiently large to layer, and so I had to commence again. This time I found better assistance, and by that means I became a Carnation grower.

The pots I recommend are from 7 to 9 inches in diameter. A single strong plant may be grown in the 7-inch pot, and a pair or three layers in 8 and 9-inch pots, according to the strength of the plants. Place a good layer of clean potsherds in the bottom of the pot, and cover thinly with fibre, leaves, or litter, so as to prevent the soil running into the drainage. Do not fill the pots, but have the surface of the soil 2 inches below the rim, so that a top-dressing may be given about the end of June. This compost should be moderately rich, consisting of good rich decayed manure, with a small proportion of soil, or sheep's dung, which is better, may be employed. After this the plants will only need supplying with water and keeping free from green fly or dust, stirring the top of the soil in the pots occasionally to prevent the growth of moss.

When the plants commence showing their flower buds weak liquid manure should be given in small supplies. The best manure

for preparing liquid I have used is guano, but others are nearly as good. Horse droppings, sheep dung, nitrate of soda, pigeon dung, &c., I have found all good.

If large flowers are desired disbudding cannot be commenced too early, reducing the buds to one or two on weak-growing varieties, whilst stronger sorts may have three and sometimes four flower buds. In order that the flowers may develop their petals evenly it is good practice to tie the pods with bast or strong cotton rubbed with beeswax, which I prefer doing before the point of the pod opens; by this means split pods may be generally avoided.

If the flowers are intended for exhibition the exhibitor will find a stand of blooms show to much more advantage by placing the best flowers at the four corners of the stand, and if possible to be heavy edges in Picotees. This was the advice a famous grower once gave me, for he said that the corner blooms being so good displayed the other flowers to more advantage—in fact, as he said, "propped up the whole stand." In all cases let there be a good blending of the flowers in Carnations, employing the scarlet bizzarres, crimson bizzarres, and scarlet flakes for the deep-coloured flowers; whilst the pink and purple bizzarres, purple flakes, and rose flakes answer for the pale varieties. The same plan must be adopted in the Picotees, mixing the flowers thoroughly, as the more diversity they show the better they appear.

I see that the question of dressing or not dressing the Carnation has been raised again, and the advocates of the latter I find are in a similar position to politicians who belong to the minority in the country, and assert that the majority is of their way of thinking. To these I can only say, Become florists, and if you do not dress the flowers I shall be greatly surprised. No doubt all florists would oppose the non-dressing of flowers or discarding the beautiful double flowers we now possess, and returning to the five-petalled varieties called singles. I think if the non-dresser could see how much some flowers are improved by passing through the hands of an artistic dresser he would become a convert. Again, to dispense with dressing generally is impossible, for in windy situations like mine it would be impossible to exhibit without so treating the flowers. I have had numbers of flowers where the petals, through the effect of the strong winds, were all blown to one side. Of course there are flowers which cannot be improved by the dresser's art; these when once seen should be remembered. Dressing has always been done, and will be continued in spite of all that can be said to the contrary.

ERANTHEMUM PULCHELLUM.

PLANTS which produce blue flowers freely in our conservatories during December, January, and other winter months are by no means common—indeed, they are so scarce that I do not know one worth naming excepting the above; but it is a host in itself, and I shall always grow it in quantity. It is easy of culture, free in flowering, and the blooms are pretty in arrangement, form, and colour. Plants in 6-inch pots have six and eight shoots from 2 feet to 3 feet high; these again are clothed closely with side growths 2 or 3 inches long, and it is these which terminate in a cluster of bright blue flowers. For cutting these shoots are of great use. Hard cutting does not injure the plants. The main shoots, unless fully out, may be cut away altogether and fresh growths will spring from the bottom, the tops of which may be taken as cuttings in February or March, and the side shoots may also be employed for this purpose. As soon as they have ceased flowering they begin producing fresh leaves, and it is then the cuttings may be taken. These root freely inserted in any ordinary light compost, with the help of a little bottom heat. After rooting they must be transferred into small pots and kept in a warm house or pit for a time; but throughout the summer they may be kept with other winter-flowering plants, such as Bouvardias. In the autumn they should be well exposed to the sun, as on this depends their being easily brought into flower. By repeated stopping very dwarf bushy plants may be had, and these are most useful for decorative purposes.—J. MUIR.



KITCHEN GARDEN.

PEAS sown in November and December are making considerable progress, and will need protection from birds, especially sparrows. A few lines of fine rough twine placed over the rows and a few inches

above the Peas, giving occasional dustings of dry wood ashes when the Peas are damp, will be sufficient to ward off their attacks as well as those of slugs. When the plants are sufficiently advanced a little soil must be drawn to them on both sides of the rows, and some short sticks placed in will prevent them being injured by winds. Make a sowing of early and second early Peas. William I. and First and Best should be sown along with the second early or main crop varieties, so that there may not be any break in the succession. Except for early crops open situations are the most suitable for Peas. Between the rows of Peas a single row of Round or Summer Spinach may be had. Early Cabbage should have the soil drawn around the stems, hoeing-in the spaces between the plants. A good breadth of August-sown Cabbages should be planted, allowing a distance of 20 to 24 inches apart according to the variety and the size of heads desired. Plant Jerusalem Artichokes now, allowing 2 feet between the rows and 18 inches between the plants; select good round sets, and insert them 4 to 6 inches deep. If the soil be rich the rows may be 3 feet apart.

Forcing Department.—Well ventilate frames containing Carrots and Radishes when the weather is favourable, thinning out early-sown crops to about 3 inches apart, making another sowing of these for succession in frames over fermenting beds covered with a few inches of light rich soil. Potatoes in pits and frames are growing vigorously; remove the lights when the air is mild. Sets of these prepared in boxes of leaf soil should be planted out when the shoots are about a couple of inches long, the fermenting beds being covered with 6 inches depth of light rich soil, inserting the sets about 4 inches deep 12 inches apart in rows 15 inches asunder. Any frames or pits may be utilised by preparing fermenting materials and soil for planting with prepared sets of Potatoes, which will afford a fuller supply of tubers in May than those earlier planted. French Beans at this season are best sown in pits filled with fermenting materials to about 18 inches from the glass, treading them firmly, and putting in about 6 inches of light rich soil, as the fermenting materials will settle and give space for the plants. Sow the seed in drills 15 to 18 inches apart. Osborn's Forcing, Canadian Wonder, and Ne Plus Ultra are suitable varieties. Artificial heat must be employed to maintain a night temperature of 55° to 60°, and 5° to 10° more by day, and a similar rise by sun heat. Maintain the supply of green Mint by introducing fresh roots, also Tarragon, making frequent sowings of Mustard and Cress. Continue transferring fresh roots of Seakale and Rhubarb to the Mushroom house; but where fermenting materials are available, and the stools can be covered with hurdles or pots, the results will be finer at this season than such as can be obtained by lifting the roots. Where Basil and Sweet Marjoram are required seed may now be sown in boxes or pans and placed in gentle heat. Celery for the principal early crop should be sown in pans placed in a hotbed; for this sowing Sandringham White and Leicester Red are suitable. The earlier-sown should be potted off singly in 3-inch pots and grown in a temperature of 60° to 65°. Sow also Tomato seed to obtain plants for fruiting in pots. Orangefield is still one of the most useful and prolific varieties, Criterion being good alike for pots or planting out, as also is Trentham Early Fillbasket. Plants from earlier-sown seed should be shifted as they fill the pots with roots. In all cases keep the plants near the glass so as to induce a sturdy early-fruiting habit; the temperature must be 55° to 65°. Capsicums, where these are required in good time, should now be sown for an early supply of pods and treated similarly to Tomatoes.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit in the earliest house is now swelling freely, hence syringing the trees must not be neglected in the morning and afternoon of fine days, but in dull weather damping the borders will be preferable. Fruits that have been properly impregnated will swell rapidly to the size of small marbles, whilst those that are defective in that respect will advance very slowly, and should be removed gradually, leaving about twice the quantity of the larger-sized fruits as will be required for the crop to allow of further thinning. In thinning the fruit remove those on the under side or at the back of the trellis. Disbudding must be carefully

attended to, removing a few of the foreright or other shoots not required at a time so as not to give any great check to the roots. If aphides appear fumigate moderately on two consecutive calm evenings, having the foliage dry. The night temperature should be continued at 55° or 60° if the weather be mild, advancing to 70° or 75° from sun heat, ventilating freely over 65°, being careful in ventilating in frosty weather, for cold draughts give a check to the tender foliage and young fruit, and it is better to allow the temperature to rise a little higher than to open the ventilators too much to reduce it. In watering the inside borders weak liquid manure will assist the fruit in swelling.

Pines.—In order to have ripe Pine Apples at all seasons successional plants must be started at various times during the year. About this time it will be desirable to supplement the batch of autumn-potted suckers by a selection from the plants that have been wintered in 7 or 8-inch pots. Select the most vigorous and best rooted, shifting them into the fruiting-size pots, keeping them well down in the pots to admit of a copious supply of water when needed, firmly ramming the soil round the balls, which in a bottom heat of 85° at the base of the pots will speedily be occupied with roots. The plants that remain after this selection is made should be reserved until the spring potting time, when they should be shaken out and be subjected to the same course of treatment as those which will then be started. Continue the treatment advised in our last calendar for plants which have recently started into fruit, taking care that the heat at the base of the pots does not exceed 90° to 95°. If the plants are in a satisfactory state at the roots they will indicate it by producing good suckers, especially Queens. If too large a number of these be retained it is prejudicial alike to the fruit and future stock, hence as soon as the suckers are large enough the growth of all except one to each plant, which should be left for stock, must be removed. When leaves are employed for making Pine beds they should be collected and stacked, as the time is at hand when they will be required.

PLANT HOUSES.

Stove.—There is nothing like a long season of growth for the Allamandas, hence all the varieties that have been kept dry at the roots and rested through the winter should at once be cut back, half the old soil being removed; repot them in good turfy loam, and at once secure them to the trellis, as if this be not done before growth commences there is danger of breaking the shoots. Bougainvillea glabra should at once be started, removing a portion of the old soil from such as are already large enough, returning them to the same size pot, employing good turfy loam enriched with well-decomposed manure. Plants of Clerodendron Balfourianum that have been quite dry at the roots should be well soaked in tepid water, but shaking out or cutting in the branches will not be needed. Plants which it is desirable to increase in size must be at once shifted into larger pots without disturbing the roots more than in removing the crocks.

Ixoras, Francisceas, and others of an evergreen character should, if they require more root room, be now potted, not reducing the roots, merely removing the crocks and loosening the sides of the ball, and removing any surface or other soil not occupied with roots. The soil employed in potting must always be warm and pot firmly. For hardwooded stove plants all peat is preferable to a mixture of loam and peat.

Alocasias should be potted in a mixture of two parts fibrous peat, a similar proportion of chopped shagnum, and one part each of old dry manure, crocks, and charcoal, with a sprinkling of sand, providing extra drainage, as during growth copious supplies of water are required. *A. macrorhiza* variegata is very effective and should be grown in fibrous loam, with a fourth of well-decomposed manure and a sprinkling of sand. Marantas, though of little value for decorative purposes as they soon become disfigured in a cold or dry atmosphere, yet are great ornaments in the stove. They should be potted in peat and loam with a sixth of sand and a smaller proportion of crocks and charcoal, draining well, and not overpotting, as when so treated the soil becomes sour and the plants do not thrive.



UPWARD VENTILATION IN WINTER.

JUST so long as success is attained in wintering bees by both methods—ventilation and non-ventilation, there will be earnest advocates of both systems. It cannot be that both systems are equally successful. There is no use to deny the fact that bees have been wintered by both methods, but which plan has been proved the best? I advocate upward ventilation as the safest for general adoption.

Are we any more successful in wintering bees at present with all the modern appliances and knowledge of the science of bee-keeping, than we were twenty years ago? The general answer is, "Not a bit." Then, we ask, in what condition for the most part were bees then left for winter? Without entering into a description of that condition, it will be understood when we say winter found them as summer left them. No contraction of entrances, surplus boxes left on with entrance holes to them all open, and, as often as otherwise, glass in boxes broken out and doors open, thereby ventilating the hive most thoroughly; but still the bees were all right, and the winters then were just as cold as they are now.

Judging from reports given in the papers from time to time, and from my own extensive observations last spring of a great number of apiaries, I have arrived at the conclusion that more colonies survived the winter of 1880-81 that were left to themselves with thorough ventilation, and unprepared by packing, than the number saved that were packed for protection. During a severe winter there is a great amount of moisture arising from a colony of bees, which will condense on the walls of the hive or in the packing materials, which will have so filled them with moisture that the temperature of the hive is brought down so low that it is impossible for the bees to generate sufficient warmth to be able to change their position when the stores in reach of them are exhausted. This cold damp condition of the hive and packing soon exhausts the vitality and reduces the temperature so low that the colony becomes unhealthy and diseased. All of this trouble can be avoided by means of a proper condition of the hive, and providing means for the escape of this moisture.

In nearly every case, last spring, where I found hives that had been placed on blocks raising them from the bottom board from half to an inch all around, the bees survived, and so where hives were much open from season cracks, which provided thorough ventilation and a circulation of air, thereby keeping cluster, combs and hive dry. Again, hives, regardless of size or depth of frames, were packed with chaff, straw, &c., ample means being provided for free circulation of air through the packing keeping all perfectly dry, with sheltered eastern or southern exposure. Colonies so arranged lived and came through with less consumption of honey than where unprotected. Again, in hives of very large size, without upward ventilation, but large entrance openings and sheltered exposure, were saved. But limited success was attained with bees in cellars where the temperature remained much below 45°.

One fall I placed quilts well tucked down over the frames, and over these a thick chaff cushion, and contracted the entrances to three-eighths by 2 inches, and flattered myself I had them in better condition than some of my neighbours' bees that were left with entrances open the full width of the hive, and also several large holes open into honey boxes. But, imagine my surprise at the beginning of the next season, upon examination, to find those terribly neglected badly managed bees working in boxes and swarming a week or ten days sooner than my own.

Is it not a fact that the first swarm of bees you hear of in the season has come from bees cared for as my neighbour's were?

On the 28th of last May a gentleman passing my apiary asked me if I had had any swarms yet. No; the best of them are only occupying, with all my quilts and chaff cushions, about two-thirds of the usual number of frames. "Well," said he, "I had a good swarm this morning." And without further talking I rode out (five miles) to his place to see the hive that had so early cast a swarm. He had but one colony, and that was standing in the corner of his garden with a few boards over it to shelter it from rain, and had not been touched or opened since the honey was taken from boxes the fall previous.

The hive was a Langstroth; ten frames 8 inches deep; honey-board, with half an inch space between it and frames; one large honey-box on, holes open and two 1½-inch holes opened into the cap, where moisture passed off into the cap, which was fitted loosely and open at the joints. The entrance was nearly the full width of the hive, half an inch, and was open all winter and spring. A slight dash of Italian blood was in the bees. I have occupied this space

to prove the position taken at the start, and cases similar to these have no doubt been observed by all.

Pack your bees as well as you wish, but see that the packing is kept perfectly dry by upward ventilation.—JOHN A. BUCHANAN (in *The American Bee Journal*).

BEES IN PARIS.—The practice of keeping hives of bees in Paris has spread so extensively that the prefect of police has thought it necessary to issue an order forbidding it for the future, except in the case of persons who shall have received a special authorisation. The preamble of the decree represents the great danger to the population of the existence of so large a number of bees in the neighbourhood of the markets, schools, and refineries, as well as the opinion of the Council of Public Health for the Department of the Seine condemning the practice.

TRADE CATALOGUES RECEIVED.

Samuel Hartley, Headingley, near Leeds.—*Catalogue of Carnations and Picotees.*

Samuel Yates, 16 and 18, Old Millgate, Manchester.—*Catalogue of Flower and Vegetable Seeds.*

Daniels Bros., Norwich.—*Illustrated Guide for 1882.*

John Coaker, 82, Union Street, Aberdeen.—*Catalogue of Flower and Vegetable Seeds.*

James Yates, 29, Little Underbank, Stockport, and Southwark Street, London.—*Catalogue of Flower and Vegetable Seeds.*

Vilmorin, Andrieux, & Cie, 4, Quai de la Megisserie, Paris.—*Catalogue of Flower and Vegetable Seeds (Illustrated).*

Ormiston & Renwick, Melrose.—*Catalogue of Flower and Vegetable Seeds.*

Ryder & Son, Sale, Manchester.—*Catalogue of Flower Seeds.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Violets (*Miss J. Butler*).—You can gain the information you need by writing to Mr. Lee, Florist, Clevedon, Somerset, the raiser of the variety you name and several others of equal merit.

Quassia Water (*E. C.*).—It is made by boiling a quarter of a pound of Quassia chips in a gallon of soft water, and is more effectual as an insecticide if 2 or 3 ozs. of soft soap is stirred in it as it cools. Strain off the chips and stir the solution before using.

Primula Blooms (*W. E.*).—The variety No. 1 is very handsome; the flowers large, of good form and substance, and the colour a rich rosy purple. It is one of the finest we have seen. The other is bright in colour, but not specially remarkable.

Lilium Bulbs (*Amateur*).—We doubt if such returns as you suggest were published that they would be of any real service; there is a chance, indeed, that they would be occasionally misleading, as so much depends on the quality of the bulbs and other circumstances. The subject, however, shall have consideration.

Lithospermum prostratum (*D.*).—Many thanks for your note, but you have probably been misled by the branch appearance imparted to the plant by the artist. It is the true *L. prostratum*, of which you will find several specimens at Kew, particularly on the old rockery. *L. fruticosum* is taller-growing and of quite different habit. We do not know where *L. orientale* is grown now, possibly some of our readers can inform you.

Mushrooms Failing (*X. F. Z.*).—Your treatment appears to have been correct except that the temperature of the house is 10° too high, and perhaps also the atmosphere is too dry. If the spawn were good and the material of the bed suitable we should attribute the non-development of the Mushrooms to the cause indicated. Had the horses been having medicine or Carrots? If so the bed would not be in good condition. We should pull up the bad Mushrooms and lower the temperature, and if better produce does not follow you may conclude that either the spawn is not good or the bed is faulty.

Cabbages for Succession (*A. D., Isle of Man*).—The gardener to whom you refer grows Ellam's Early Dwarf as obtained from Messrs. Veitch & Sons for spring use, sowing the seed at intervals as stated on page 47. He also sows a bed of the Rosette Colewort early in June or about midsummer, as the plants come in well to plant in any ground that falls vacant, and they are valuable for late autumn and winter cutting. A good strain of Early York is very useful

for a spring sowing, but he has always found it useless to come in as a spring Cabbage, having a great tendency to run to seed without hearting.

Training Espaliers (*A New Subscriber*).—We do not know that you can adopt a simpler and cheaper method. The only question appears to be making the posts firm. This can be done by inserting them deep enough, ramming some hard material round them, and supporting them with spurs or stays if necessary, the tops of which, cut slantingly, to be just above the soil. If the work is neatly done they are not obtrusive, and they impart great strength to a fence. For the purpose of tightening the wires neat stays facing the trees should be nailed to the posts some distance above the soil, and if well made and fixed they will be of great utility and not unsightly. We have seen the plan you adopt answer admirably, and we consider it much better than a fence formed of stakes. Are your posts stout enough?

Camellias for Wall (*M. B.*).—The following are free growers and bloomers, and there are many others equally good if you are unable to obtain suitable plants of the varieties named—Alba plena, pure white; Imbricata, red sometimes marbled with white; Mathotiana, red; Mathotiana alba, white; Cup of Beauty, blush, occasionally deepening to pale rose on some petals; and Reine des Fleurs, vermilion red, sometimes flaked with white. We cannot recommend dealers of any garden requisites. A moment's reflection will suffice to show how unfair it would be for us to do so, as by recommending one vendor we should virtually disparage others of equal repute.

Fence for Tennis Ground (*Amateur*).—The height of your fence, 4 feet, and your strong yet well drained soil, suggest the suitability of Roses for forming a hedge. These, we think, would be far more enjoyable than annuals or climbing plants, few, if any of which, would flower all through the tennis season; but with such Roses as Gloire de Dijon, La France, Général Jacqueminot, Jules Margottin, Prince Camille de Rohan, Crimson Bedder, and other free-blooming Hybrid Perpetuals, you would seldom be without flowers. No climbing plants will adhere to galvanized wire netting, but would have to be secured to it. There is yet time for planting Roses, and a nurseryman will supply you with suitable varieties if you state the purpose for which you require them. Two dozen would be ample for your purpose. If you prefer annuals, Nasturtiums would grow well, or a line of Sweet Peas would be fragrant and attractive, but would not continue flowering during the whole season.

Hibiscus Cooperi (*W. G.*).—A compost of about equal parts turfy loam and peat, with a liberal proportion of sand, will suit the plant well if the drainage is carefully attended to. Select a light and not too warm position in the stove for the specimen, and with ordinary care in the supply of water and keeping the plant clean—scale and mealy bug being its chief enemies—little difficulty will be experienced in having it healthy, with the leaves brightly coloured. The Maranta will succeed under similar treatment, but a slightly higher temperature is preferable, employing shallow pans or thoroughly drained pots, as any superfluous moisture in the soil is injurious. Rather less loam is needed in the compost than that recommended for the Hibiscus. The Caladiums may be started at once, employing a compost of loam, peat, or leaf soil, well decomposed manure, and plenty of sand. The loam and peat should be broken up roughly, but all should be as well mixed as possible. As growth advances liberal supplies of water will be needed, with frequent syringings until the leaves are well developed. A light position in a stove improves the colour of the foliage very much, and it is well to have the plants as near the glass as is convenient, or they become drawn and weak.

Roses in Pots (*E., Dunse*).—If your Roses are healthy and roots plentiful we should not hesitate to cut them down at once. This would be much better than the alternative plan you suggest, and stronger and dwarfer plants would follow. If you prune them now the lower buds will start and good flowering growths be produced. As regards immature wood, that at the top, which you propose leaving, is less ripe than that at the bottom, from which growths will issue if pruned. Removing the young growths to which you allude would not weaken the plants, but rather strengthen them by concentrating the root power which will be expended on fewer shoots, and which would consequently grow more strongly than if the sap were distributed through a greater number of growths, which must be necessarily smaller. It would not be advisable to cut the plants down after flowering, nor will there be any necessity for it if you prune them now. As the plants have the protection of glass you will still have early blooms; and if we understand the condition of your plants rightly, much finer blooms than if you permit the present growths to extend. The size and strength of the plants, however, you have not made clear to us.

Daphne indica Unhealthy (*Puddle*).—Your plant appears to be in a very bad state, and careful attention will be needed to restore its lost vigour. Its root-action is defective, but whether the soil is unsuitable or whether the plant is root-bound and has been starved by want of water we have no means of knowing. Either extreme—that is, a soddened soil causing the roots to decay, or drought at times causing them to shrivel, would have similar results—a comparatively leafless and sickly plant. Turn the plant out of its pot and remove any inert soil, even reducing the ball to half its bulk, and place in a clean well-drained pot just large enough for holding the roots conveniently. Employ a compost of sweet turfy loam, adding a little leaf soil, about a fourth, and a free admixture of silver sand; work the soil well amongst the roots and press it rather firmly. Apply water with great care, only giving it when the soil appears dry, and then in sufficient quantity to penetrate the entire mass. Place the plant at the warm end of a greenhouse, and syringe it occasionally during fine weather, and it will perhaps recover. Crush some charcoal to powder and apply it to the wounds on your Indianrubber Plant.

Peas, Beans, and Tomatoes for Exhibition (*A. Z.*).—The season for Telegraph Pea generally extends to about the middle of July. To be certain of good pods for exhibition at the end of July or later, extra care must be taken, as unless the ground is well manured and deeply dug mildew will prevail, and the pods resulting will be easily surpassed by the varieties of the Ne Plus Ultra type. Much depends upon the season, and for this reason we should advise a small sowing be made early in April, and again about the middle of the month. Sow the seed thinly, mulch heavily, and when pods are set give one or more thorough soakings with liquid manure. Pinch out the points of haulm when the first pods are set, and thin them out a few days later. Carters' Leviant Broad Beans will well repay similar liberal treatment. Sow seed towards the end of March, and again early in April, the object being to secure pods at their best just when required, and this is not always possible from one sowing. Supposing the Tomatoes are to be grown in a comparatively cool Peach house, early in April will be a good time for sowing seed. Keep the seedlings growing without a check, as the growth cannot well be too sturdy if fine crops of fruit are expected. You do not state how you intend to grow them, but if in pots attend carefully to the watering, giving liquid manure frequently, and a good top-dressing when the fruit is swelling. In any case single stems are preferable, all side shoots being kept closely rubbed out. The latter operation is par-

ticularly necessary where the Tomatoes are planted in rich soil, as in this case they grow most luxuriantly. If the fruit fails to set, flowers must be fertilised artificially.

Cœlogyne cristata (*Allen*).—The following note, communicated by a successful cultivator, will perhaps meet your requirements:—Cœlogyne cristata is a charming Orchid and popular with all growers. No garden where choice white flowers are in demand through January, February, and March should be without a few plants. It is not difficult to grow. It is an evergreen plant, and its growth is made after flowering. The flowers last nearly five weeks if not in too much heat and kept free from damp. The plants will succeed on blocks or in pans. When on blocks much more attention is necessary as regards water; therefore we prefer them grown in pans. The compost should consist of chopped sphagnum moss, peat, sand, and plenty of broken potsherds. The drainage must be abundant, the pans being half filled with crocks, as liberal supplies of water are necessary during the period of growth. This species can be grown well in an ordinary plant stove where the temperature is between 55° and 60° at night, with the usual rise in the day. It enjoys a good rest, and its fleshy pseudo-bulbs allow of it being kept tolerably dry at the roots, and it is much benefited by being placed in cooler quarters after growth is completed, but should not be in a lower temperature than 45° or 48°. It is necessary while the plant is making its growth to shade it from the sun, yet in the declining months of the year after the growth becomes somewhat ripe it should be gradually exposed to more light and a cooler atmosphere. If any plants are unhealthy they should be turned out of their pots, the roots washed, and then placed on blocks with a little moss, and suspended from the roof of a house where a temperature of about 60° is maintained. They will soon make fresh roots, and when sufficiently recruited can again be placed in pans.

Incurved Chrysanthemums from the July Bud (*C. W.*).—It is nearly impossible to obtain good blooms of incurved Chrysanthemums from the July bud. Those who take flowers from this bud make a great mistake, and disappointment results in most cases. By chance a good flower might be produced, but generally they are rough and loose. When this July bud is discernible the plants if allowed will form three shoots around it, and the shoots below in the axils of the leaves will also advance. These buds must all be removed with the point of a sharp knife, as well as two out of the three shoots. After this is done the strength of the plants is concentrated into the one shoot left, which at that season of the year grows rapidly to 1 foot or 18 inches in length. On this growth another bud is produced about the third week of August—that is, if the July bud was not late. The time in August that this bud appears depends upon the early or late character of the varieties, and according to the time the plants are stopped in their early stages. This last bud is the one which develops to exhibition size, and is known as the crown bud. This is surrounded by three shoots the same as that produced in the month of July. These as well as those that will again spring from the axils of the leaves as soon as the bud is formed must be promptly removed, or the crown bud will not develop. Good flowers from some varieties that are liable to grow rough and coarse are taken from a still later growth, the bud in which differs considerably, and is known as the terminal bud. Instead of being surrounded with three growths it has a number of flower buds, and these also appear in the axils of the leaves instead of growths, as in the previous cases. What may be termed the August crown bud is much depended upon about Liverpool. In the south, an excellent cultivator says, the crown bud cannot be depended upon, as varieties that come good in one season are worthless in others; but the surest are Mrs. G. Rundle, G. Glenny, Mrs. Dixon, Alfred Salter, Queen of England, Empress of India, Golden Empress of India, Aurea Multiflora, Prince Alfred, Novelty, Beethoven, Guernsey Nugget, Eve, and Venus, and these usually come the least deformed on moderately strong plants.

Cucumbers in Greenhouse (*W. H., a New Subscriber*).—We never feel ourselves "troubled" by such letters as yours, and we are always ready to aid those who are endeavouring to render their gardens enjoyable and profitable. You can grow Cucumbers in your greenhouse during the summer, or when you can maintain a night temperature of 65° without hard firing, and a moderately moist atmosphere. No harm will be done if the temperature falls to 60° occasionally in the morning, but it should not be lower. The best plan would be to make a wooden trough and place it on the front flue the entire length, and as wide as convenient. If it can be made 3 feet wide the sides may be formed of 9-inch boards 1½ inch thick. If it is narrower the depth must be greater, which 11-inch boards will afford. Such deals will do if strips are placed across the top of the trough at intervals of 3 feet and secured to the sides, as these would give the necessary rigidity. The bottom may either be formed of boards placed closely together with holes three-quarters of an inch in diameter and 9 inches apart, or a number of narrow boards placed crosswise with quarter-inch spaces between them for drainage purposes. The holes or spaces must be covered with one layer of crocks and over them a layer of turves grass downwards, or failing these with flakes of manure or leaves. The trough will then be ready for the soil, the best consisting of two parts of rather strong turfy loam, the remaining part decayed manure and wood ashes. If a twentieth part of bone meal is added it will be beneficial. The soil must be rough and open, not sifted, and the trough filled about three parts full, the remaining space being for top-dressings of rich soil or manure as the roots come through the surface. The soil must be placed in the trough some time before planting in order to be warmed. We will now refer to raising the plants. The best plan we think would be for you to purchase strong plants when you are ready for planting them; they are not costly, and should be planted 3 feet apart; or perhaps you might induce some neighbouring gardener to raise them for you if you gave him some seed. Raising good plants is the most difficult part of the matter; perhaps on this account you would like to raise them yourself. The best method of procedure would be to place a partition across the trough about 2 feet from the warmest end, and cover the space with squares of glass; you would then have a miniature propagating case. In this place a layer of cocoa-nut fibre refuse 4 inches thick, keeping it moist. When it is warm fill some 5-inch pots three parts full of soil, and when this also is warm, also moist, sow two seeds in each pot, placing them edgewise, and just cover them with soil, and lay a small piece of glass across each pot; the soil will not then need watering until the plants appear. You will only need one in each pot, therefore if two appear draw out one when the other is safe. At first prop up the glass for a few days, then remove it. Apply warm water whenever the soil appears dry. As the plants advance add fresh soil, and ventilate as needed by propping up slightly the roof of your case, and when they become large remove the glass entirely, then in the course of a week stand the pots in the soil in the trough for a few days before planting. The heat of the case should range between 70° and 80°. When the pots are filled with roots the plants will need much water. After being planted apply water whenever the soil appears dry, giving sufficient to moisten every particle. Syringe the plants in the morning and again in the afternoon when the house is closed, which should be as early as possible, so that the temperature does not rise above 85° afterwards. When the plants reach the roof pinch off

the tops, and train the subsequent growths 10 inches from the glass. Read our "Work for the Week," and if you need further instructions write to us again. March will probably be too soon for placing the plants in frames. There is no better Cucumber for your purpose than Telegraph. The work you name is not ready.

Names of Plants (J. H.).—*Cotoneaster baccularis*, a native of the Himalayas. (*G. H.*).—Both the specimens are much crushed, but they appear to be varieties of *Selaginella Mertensii*. (*R. O. P.*).—1, *Jasminum nudiflorum*; 2, *Begonia heracleifolia*; 3, *Jasminum Sambac*.

COVENT GARDEN MARKET.—FEBRUARY 1.

BUSINESS continues in a similar condition to last week.

		FRUIT.							
		s. d.	s. d.	s. d.			s. d.	s. d.	s. d.
Apples.....	½ sieve	1	0	4	Lemons.....	case 12	0	10	6
Apricots.....	doz.	0	0	0	Melons.....	each	0	0	0
Cherries.....	½ lb.	0	0	0	Nectarines.....	dozen	0	0	0
Chestnuts.....	bushel	16	0	0	Oranges.....	½ 100	4	0	6
Currants, Black..	½ sieve	0	0	0	Peaches.....	dozen	0	0	0
„ Red.....	½ sieve	0	0	0	Pears, kitchen ..	dozen	1	0	6
Figs.....	dozen	0	0	0	„ dessert.....	dozen	1	0	4
Filberts.....	½ lb.	0	0	0	Pine Apples....	½ lb.	1	6	2
Cobs.....	½ 100 lb.	75	0	0	Strawberries...	per lb.	0	0	0
Gooseberries....	½ sieve	0	0	0	Walnuts.....	bushel	7	0	8
Grapes.....	½ lb.	2	0	6					

VEGETABLES.

		s. d.	s. d.	s. d.			s. d.	s. d.	s. d.
Artichokes.....	dozen	2	0	4	Mushrooms.....	punnet	1	0	1
Asparagus.....	bundle	0	0	0	Mustard & Cress..	punnet	0	2	0
Beans, Kidney....	½ 100	1	0	0	Onions.....	bushel	3	6	0
Beet, Red.....	dozen	1	0	2	„ pickling.....	quart	0	0	5
Broccoli.....	bundle	0	9	1	Parsley..... doz.	bunches	3	0	4
Brussels Sprouts..	½ sieve	2	0	0	Parsnips.....	dozen	1	0	2
Cabbage.....	dozen	0	6	1	Potatoes.....	bushel	2	6	3
Carrots.....	bunch	0	4	0	„ Kidney.....	bushel	3	0	3
Capsicums.....	½ 100	1	6	2	Radishes..... doz.	bunches	1	0	6
Cauliflowers.....	dozen	1	0	3	Rhubarb.....	bundle	0	4	0
Celery.....	bundle	1	6	2	Salsafy.....	bundle	1	0	0
Coleworts..... doz.	bunches	2	0	4	Scorzoneria.....	bundle	1	6	0
Cucumbers.....	each	0	6	0	Seakale.....	basket	2	0	2
Endive.....	dozen	1	0	2	Shallots.....	½ lb.	0	3	0
Fennel.....	bunch	0	3	0	Spinach.....	bushel	3	0	0
Garlic.....	½ lb.	0	6	0	Tomatoes.....	½ lb.	0	8	1
Herbs.....	bunch	0	2	0	Turnips.....	bunch	0	4	0
Leeks.....	bunch	0	3	0	Vegetable Marrows	each	0	0	0



POULTRY AND PIGEON CHRONICLE.

CULTIVATION AND MANAGEMENT OF HOPS.

ON some estates Hops form part of the growth of crops, but they are difficult to manage; and even under the best culture and the best means adopted both scientifically and practically by the most intelligent and experienced growers, the crops suffer in the most extraordinary manner from blight, mould, and from various parasites and insects. In fact the enemies to the plant, irrespective of adverse weather, are or may be in certain seasons at work in injuring or destroying their growth from infancy until the latest period of growth. It is this uncertainty which deters numbers of persons in different districts from growing them, and, together with what is called the extraordinary tithe charges on new plantations, has a strong influence in preventing such an extended culture as would compete with foreign growers.

We find that in 1861 when the duty ceased only 47,941 acres were in full plant in the United Kingdom, whereas the agricultural returns for Great Britain showed 56,562 acres in 1866, and 64,273 acres for the year 1867. The abolition of the customs duties had the effect of stimulating the production of foreign Hops to a certain extent, and the enormous prices obtained for foreign Hops in 1860-61, on account of the almost entire failure of the English crop in the disastrous season of 1860, tended still more to encourage the foreign growers. The accidental circumstances of a succession of small and indifferently grown crops in this country for the following seven years, taking the average, gave a general impetus to foreign Hop-growing, which eventually

culminated in the extraordinary importation of 322,515 cwts. during the year 1869. This combination of causes has awakened the English growers to the real position of affairs; and they have since been making vigorous efforts to improve their system of cultivation, which is now carried out with more intelligent supervision.

The soils best adapted for the successful growth of Hops will first receive attention in these remarks. Although nearly the whole of the Hops grown in this kingdom are grown in the following counties—viz., Kent, Sussex, Surrey, Hampshire, Worcestershire, and Herefordshire, there are districts of the kingdom which possess a soil suitable for their growth; some of these, however, have an adverse climate and situation, which will be subsequently referred to. We may shortly state that deep rich dry soils with naturally porous subsoils are the best. All retentive subsoils, however, should be drained thoroughly at a depth of not less than 4 feet, and at a distance varying from 16 to 20 feet apart, with not less than 2-inch pipes, and if with gravel or stones laid next the pipes so much the better, as the roots of the Hop plants are not so likely to run into the tiles and block them by forming a mass of small fibrous roots. The land adapted for the growth of the best Hops, such as the Goldings and Canterbury, are deep dry loams, or deep soils of a mixed character as regards retentiveness, but resting upon subsoils naturally porous, such as the sandy loams on a subsoil of chalk, like the districts around Canterbury and Rochester, and various other districts where the chalk meets the hazel loam at a good depth, but where the chalk is found near the surface the plant will not flourish. The deep and stone subsoils of the greensand formation, or the ranges of ragstone hills and vales which run nearly through the county of Kent, are also found in some other counties where the soil is not so very deep, yet the Hops grown thereon are frequently of superior quality, being smaller, but not producing so great a weight per acre. The land in Kent, however, of deep soil, such as we have above mentioned, is peculiarly adapted for the growth of the finer varieties and the greatest weight per acre.

The site and aspect of a Hop ground is of great importance, and a field slightly sloping to the north is to be preferred, being more screened from the south-west winds, which are the most prevailing during the summer months; this position, too, has more hours of sunshine than a south one, and suffers less from the scorching midday sun. In many situations it is advisable to have woodland or plantations on the south-west side of the Hop field, especially on flat vale land where the wind has a long sweep from the south-west, for in these positions the Hop plant is more subject to blight and injury by aphides than higher and more exposed situations. It is also important to look to the state and cropping of the land previous to cultivation for Hop planting. It used to be a favourite method of planting Hops on breaking up old pasture land. Although such land is in most respects favourable for their growth by the decaying of the old turf, yet it is found that numerous destructive insects are most injurious to the young Hop plant; it is, therefore, a good plan to pare and burn the turf before any cultivation is attempted. This operation destroys the larvæ of the insects of all kinds, but especially of the common wireworm, which are most injurious to young plants.

It is only comparatively recently that the ravages of the wireworm have been duly estimated and checked by traps of pieces of Potatoes, Turnips, or Rape cake laid on plant hills and regularly watched, and occasionally removed after the worms have eaten and secreted themselves in these substances. Before planting the land with Hops we prefer after paring and burning to take a crop of Potatoes; this not only prepares and cleans the land well and gives time for the grass turf to decay, but at the same time proves an excellent trap for the wireworms. We were troubled greatly with these worms in the various crops of the farm until we commenced Potato culture in 1840, after which we never suffered any injury by them, as they were removed by the crop of Potatoes in which they had secreted themselves. In all cases whether of old pasture, meadow, or cultivated arable land, a deep tilth is required, which can be obtained by either trenching with the fork or ploughing, the subsoiling implement following. The former plan, when well executed, is the best, but the latter is the cheapest and most expeditious. In trenching we bring the worst soil on the top, which oftentimes renders it necessary to give the land a dressing of lime, which is attended with considerable expenses in some districts; still there are advocates for bringing the subsoil to the surface, who argue that as the Hop plant roots very deeply, it is placing the best earth for them to root in, and bringing the bad to the top to be made better by aëration and manuring.

On the other hand, it may be argued that, although the roots of the Hop will go down very deep where they can get the oppor-

tunity, yet their numerous rootlets and fibres that spread near the surface and take in plant food when the plant requires it most—namely, at the time of producing the lateral shoots, the burr, and the Hop.

We must next consider the manures usually applied for Hop plants, and experience teaches us that manures rich in nitrogen are the best, especially as what we call hard manures being of small bulk and easily applied with the greatest economy, in which catalogue we must include woollen rags, shoddy, Rape dust, guano, superphosphate, fur waste, bone dust, and blood manure. The bulky manures and the most lasting are probably the most advisable, except for temporary purposes at and during the periods of growth of the plants. These consist of farmyard manure improved by the oilcake consumed by cattle, also sprats and other fish mixed in earth or dung for a time before application to the hills, and should be forked into the ground.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The weather having been foggy, but without rain or frost up to the time we are writing, has enabled the fallow ploughing to be completed. The work lately has been carting dung from the cattle yards and boxes to a heap for land which will come in for Mangolds. As the land has been fallow-ploughed it is not yet dry enough to lay out and plough in the dung; it therefore is made into a heap in a convenient place adjoining the field. This would be without much advantage, except that in distant fields it accelerates the work of laying out, when the heap is made in or near the field where it will be required for use, and saves labour at a more important and busy period. Otherwise we prefer to allow the dung to remain and accumulate in the boxes and cattle pens, and lay it out fresh rather than draw it to heap where fermentation and consequent loss of ammonia is always going on. When, however, the carts are allowed to pass over the heap as the loads are added, the compression caused thereby reduces to a minimum any serious loss when the dung is required to be laid out and spread within a month or six weeks from the time of making the mixen.

Live Stock.—The Down lambs now in many instances are becoming strong enough to follow the ewes in the Turnip fields, and should be enticed into root and hay feeding; but in order to induce them to eat cake or meal early the roots should be passed twice through the cutter, in which case, the pieces being very small, the lambs can eat them whilst very young. To enable them to eat cake or meal early it should be made fine and mixed with the cut roots, Carrots being the best roots except Savoy Cabbages, which give very small pieces of leaf to mix with the cake, and can therefore be eaten more easily by young lambs at the earliest possible period. The dairy cows should now at the mangers have as much in the value as a fatting bullock if they are in full milk or just calved, and they will pay as well for liberal feeding as the oxen, especially if a suckling dairy is kept, and this will pay better than selling milk unless it is done near a town or railway station. All the young steers and heifers may go out at daytime on to dry pastures, as they afterwards eat their food in the yards with more relish, whether it consists of straw, roots, and cotton cake, or of only roots and straw less the cake. The bullocks feeding for the butcher in the boxes must now be fed at full head—that is to say, having 4 lbs. of linseed cake and 2 lbs. of bean or barley meal, or otherwise say 5 lbs. of cotton cake with the meal; but in order to insure good health and steady progress let the cake be mixed with the cut roots, which should not exceed of Swedes 65 lbs. per day, and if with Mangolds 56 lbs. will be sufficient, and with as much clean sweet Oat straw as they will eat, but without hay.

POULTRY AND PIGEONS

THE PRODUCTION OF NEW VARIETIES OF POULTRY.

POULTRY fanciers are not so experimental as they might be. German Pigeon fanciers have long been celebrated for their talent in the production of new varieties of "Toys;" indeed, it has been said that, given a desired pattern and four or five years, a German breeder will produce its like in Pigeons. There is, of course, some exaggeration in this; still, so various and interesting are the new types of Pigeons which are constantly arriving from Germany, that there can be no question of the great skill of the producers. Do poultry fanciers never make any attempts in the same line? In times past they have certainly done so. Witness the results of Sir John Sebright's labours in a breed, not only in marking and plumage peculiarly distinctive, but in form, too, singular from its freedom from sickles and hackle in the male bird. Long, however, before the days of Laced Bantams,

there seems every reason to think that there have been fanciers who have bred alike for form and useful qualities. Thus probably were by degrees established, the non-sitting varieties by constant selection of those hens which produced the greatest number of eggs and least often became broody.

Natural selection may cause curious changes, but there is no kind of evidence that the more peculiar and distinctive races of poultry, as we now possess them, were ever in a wild state. On the contrary, there is much to show that at some time or other they have been produced by selection of set purpose. We do not believe in the very modern origin often assigned to the chief French breeds, for the good reason that in pictures, especially Dutch, of the seventeenth century, the fowls generally roughly resemble the Houdan; but undoubtedly particular races of tufted fowls descended from common ancestors with the tribe of Polands, have been specially cultivated in different French districts, and in all probability the one most suitable for the table—viz., the Houdan, has at some time or other been improved in shape and plumpness by the introduction of the blood of the English table fowl the Dorking. To come, however, to very recent times, it is not, we believe, thirty years since the now everywhere popular Brahma was first introduced. It was originally a grey fowl, or almost a blue one. It is needless to state that from this grey fowl were produced by selection both the Dark and Light breeds, now so perfectly distinct, and both bred up to the severest standards of minute detail in marking and plumage. Here is assuredly much encouragement for anyone who (to quote the phraseology of the columbarian societies), wishes to indulge in the "naturalistic pastime" of producing something new in the poultry line.

Let us see where there is an opening for experiments. It would, perhaps, be best to begin by attempting to revive some of the lost sub-varieties, which undoubtedly have existed, but are now, so far as we know, lost. If a single specimen can be found at all approaching the desired standard much of the work is already done. We believe in the early days of the Cochin mania, when there were but a few dozen birds in England, that several strains—good according to the then prevailing idea—were founded on a single pure-bred bird. Some mongrel remotely resembling the treasure was found and mated with it. The most promising of the produce were mated again with the genuine parent, and the best of the second generation again with the original bird. In the same way a famous strain of laced Fantail Pigeons were derived from a single imported laced bird. There are probably here and there still to be found birds which in some degree resemble most of the lost breeds, which would help much in their revival. If we turn to the lists of Game fowls published thirty years ago, how many sub-varieties do we read of, now quite unknown in the exhibition room, yet not necessarily quite extinct? To rescue some of these from extinction would be a profitable task for any intelligent breeder. Where are the Black Game described in "The Poultry Book" as a peculiarly pure race of great richness of black and of high courage? Or where the Brassy-winged, the Blues, and the Cuckoos? Probably they may live in their descendants of a more or less hybrid and degenerate type in the districts where they once were bred for fighting; they certainly are unknown to the ordinary fancier and exhibitor. The famous old Knowsley breed of Black-breasted Reds with white legs has disappeared as a fancy fowl. Or coming to the tufted races, the last of the White Polands with black crests was probably that seen by Mr. Brent in 1845, so there is not much chance of a survivor of the race being found in 1882; but here and there a Cuckoo Poland has been seen in recent years, and this marking could probably be produced by judicious crosses among the sub-varieties of Polands without the introduction of extraneous blood. Blue with white crests, too, are hardly so distinct from the blacks as to be difficult of production. Whites are not absolutely extinct, as shown by the appearance of a pen or two at the late show of the Poultry Club. Here are some good openings for experimental fanciers, and that in a breed which will live in health and contentment in quite confined quarters.

New varieties, too, we have seen of late in "variety" classes, such as "Eymore Blacks" and "Malvern Greys," fertile sources of amusing controversy now and then when judges are puzzled about them. We are not, however, here occupied with crosses, first or second, which in their way are extremely useful, and about which we have written much, but about the production or revival of something more characteristic and permanent. A few years ago Japanese Silkies were all white; we never now see a class of the breed without some Brown specimens, very quaint and pretty, yet confessedly a recent production. All that they require is a little more of the silkiness of the genuine Japanese birds; a few generations of careful selection with a view to this particular

point ought to bring it. Why not Black Silkies too? If of a rich lustrous black they would be very handsome.

To come to Bantams—there seems, as we have often said, an unlimited field for the production on a tiny scale of any of the recognised types of larger fowls. It is the constant lament of every Bantam fancier that he cannot procure Pekins. Why does no one try to produce them by the reduction of the Cochin? This must once have been done in China. It is true that we are probably more impatient for visible proofs of progress than are the fanciers of the Celestial Empire, and we have no idea how long the production of the original Pekin Bantam may have taken. Still the task is by means a hopeless one. Cochins interbred and underfed will degenerate like other races; and we have a Bantam family in plumage by no means unlike the desired type—viz., Nankins. In the same way, too, as within the last quarter of a century, the best known sorts of Game—Black-breasted and Brown-breasted Reds, Piles and Duckwings, have been produced in miniature, might the revived Blacks and Brassy-winged, and Cuckoos be reduced. The fancier fortunate enough to show such Bantams first would gain well-merited celebrity. In these and other directions is there much scope for the intelligence and perseverance of a true fancier. Breeding for particular points is no haphazard work, though now and then a lucky chance may seem to bring us by some royal road at once to the desired goal. In another article we hope to give a few hints, necessarily very general ones, for the commencement of breeding with a definite purpose. In our opinion there are now too many exhibitors who simply breed for prizes, fame, and gain; and too few fanciers who delight to watch, as an ornithological study, the variations of plumage and qualities which follow particular unions of poultry.—C.

RESULTS OF POULTRY-KEEPING.

HAVING gained many valuable hints from the *Journal of Horticulture* about the management of poultry, my experience during the year 1881 may prove of some interest to your readers. Many contend that poultry-keeping is unprofitable, but this is by no means the case when well and properly attended to. I could point to failures and loss arising from no other cause than negligence. My stock on January 1st consisted of fifteen hens and two cocks (mongrels), which cost £1 18s. 3d., or 2s. 3d. each. From these 2240 eggs were obtained, thirty-eight being used for sitting purposes, thus reducing the number for sale to 2202, value £11 0s. 2d. at 10s. per hundred. From the thirty-eight eggs twenty-four chickens were hatched and reared to maturity; ten were cocks, and the remaining fourteen pullets. I sold fifteen for £1 6s. 6d., fourteen at 1s. 9d. each, and one for 2s. Their food during the year cost £5 3s. Three hens died, this being a loss of 6s. 9d. I have now in stock twenty-three birds, value at 2s. 3d. £2 11s. 9d., which leaves me a balance of profit of £7 10s. 5d. My fowls have an unlimited grass run, which I consider essential. I give them warm food in the morning, consisting of bran and Indian meal and scraps from the house, and Indian corn at noon and night.—THOMAS ELSWORTHY, *Court Hey, Liverpool*.

[We shall be glad to have the experience of others relative to the profits, or otherwise, of poultry-keeping.—ED.]

NOTES ON THE LIVERPOOL SHOW.

THE North Haymarket is a fairly suitable building for a show, and indeed, under the atmospheric conditions which prevailed on Wednesday and Thursday last week, the building in most parts was all that could be desired in the matter of light. But for a delay in getting the birds penned and a consequent delay in the judging the management was first-rate. The birds were well fed and otherwise attended to, and the awards were very rapidly posted on boards prepared for the purpose. The entries were considerably in excess of last year's numbers, and reached a total of nearly 1200.

MR. R. E. HORSEFALL adjudicated upon the Brahma classes, and his appointment as Judge was apparently appreciated by the leading exhibitors, who were nearly all represented. His awards were generally approved except in the one instance of the first-prize Dark Brahma cock. Here Mrs. Williams was awarded first for a bird which should, we thought, have given way to Mr. Comyns's second-prize bird, which was good in size, shape, and colour, and only failed slightly in comb. Third was Mr. Mitchell's well-known winner. The Dark Brahma cup went to Mr. Percival's hen which was first at Wolverhampton; second going to a large well-pencilled bird of Mr. Comyns, which was a trifle long in back.

In cockerels Mr. Edmondson and Mr. L. Norris stood respectively first and second with very good birds; while in pullets Mr. Comyns was first with a very shapely and evenly marked pullet. Mr. Norris here won second and third, the former honour going to a pullet which

was, we believe, a daughter of the celebrated cup pullet of last year. Mr. G. H. Wood stood first in the class for Light cocks with the bird upon which we recently commented. The cup for this section was awarded to Messrs. Birch for their fine hen to which a similar honour was awarded at Belfast; Mr. Norris being second, and Mr. Wood third with equally well-known specimens.

Mr. Norris repeated his Cambridge victory in the Light cockerel class, Mr. Percival's bird which stood second at Wolverhampton being second here. We were pleased to see Mr. Lucas again at the head of the list with a beautiful pullet. The other honours in this class, which was a specially good one, went to Mr. G. H. Wood, Messrs. Birch, and Mr. Norris.

IN the Cochin classes the winners at the leading shows fought their battles over again, the cup going to Mr. Darby's Whites; and first prizes to Mr. Percival for Buffs and Partridge, and to Mr. Southern for his fine hen of the latter variety. Game were numerous represented. The cup for cocks here went to Mr. Lyon for his beautiful Black Red, that for hens being awarded to Mr. C. W. Brierley's Brown Red. Messrs. Staveley and J. Mercer also won firsts, the former for Black Red hens, and the latter for Brown Red cocks. The first-named gentlemen were also successful in the class for Duckwing hens; the first for the cocks of this variety going to Mr. J. Knowles. First and second in both classes for Piles were awarded to Mr. Brierley. Dorkings had only one class. First went to Mr. W. Peacock for good birds of the Coloured variety, and second to Mr. L. Pilkington's Cambridge winners.

SPANISH were not very numerous, but the best birds of the year were there, the cup being awarded to Messrs. Wingfield & Davies, and the second to Mr. W. R. Bull. The cup for the French varieties was deservedly awarded to Mr. W. Jackson's fine pen of Crève Cœurs which stood first in the Variety class at Wolverhampton.

BANTAMS had a liberal classification and numerous entries. Mr. G. Hall took the Game classes, and Mr. G. F. Hodson the remainder. The awards were too numerous to be given in detail. The cup for the Game section went to Mr. J. A. Nelson with a smart Black Red cock, that for Bantams other than Game to Mr. Brierley's Black Rosecombs.

THE PIGEON classes were nearly all well filled, Tumblers, Dragoons, Owls, and Jacobins being most numerous represented. The cup-winners in these classes were Messrs. M. Weston, R. J. Greenhalgh, J. C. Naylor, and J. Pyper in the order named.

OUR LETTER BOX.

Concentrated Manures (D. D.).—We cannot advise you respecting the value of any concentrated manures, as they are open to much objection unless ascertained by analysis to be adapted for the crops intended to be grown. As members of the Royal Agricultural Society have the privilege of obtaining an analysis from Dr. Voelcker at a small cost, we advise purchasers to obtain the manures they require by guaranteed analysis, and if they have any doubt about their value, as soon as the bulk is delivered to take a fair sample from several bags, mix them and send them to be analysed by a competent person, asking for the value of the article to the purchaser. Instead of concentrated manures, we prefer to buy our articles separately and mix them for the different crops.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
January.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	22	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	22	30.632	38.4	37.7	E.	39.3	41.2	33.2	42.3	25.5		
Mon.	23	30.559	34.3	34.0	N.W.	38.7	38.0	29.0	40.3	22.1		
Tues.	24	30.707	34.3	33.4	W.	38.3	41.3	28.8	57.9	23.3		
Wed.	25	30.739	29.0	29.0	N.	37.6	38.7	27.4	42.8	21.3		
Thurs.	26	30.583	31.0	30.2	S.W.	37.0	35.0	28.4	34.3	23.9		
Friday	27	30.377	40.3	40.0	E.	36.8	47.2	30.9	50.5	29.4		
Satur.	28	30.311	46.8	45.2	S.	38.3	51.2	39.7	55.0	35.1		
		30.558	36.3	35.6		38.0	41.8	31.1	46.2	25.8		
										—		

REMARKS.

22nd.—Slight fog in morning; very dark from 11 A.M. till 1.30 P.M.; finer in afternoon, but hazy.
 23rd.—Misty dull morning; finer in afternoon and evening.
 24th.—Frosty, fine, sunshine in morning still hazy.
 25th.—Frosty; thick white fog in morning; very dark from 10 A.M. till 1 P.M., clearer in afternoon; very thick fog came on suddenly at 6 P.M., continued till 7.45 P.M.
 26th.—Hazy and cold; fog at night.
 27th.—Slight fog in morning; fine day and milder.
 28th.—Fine and mild.
 Barometer still remarkably high, temperature near the average and no rain.—G. J. SYMONS.



9th	TH	Royal Society at 4.30 P.M.
10th	F	Quekett Club at 8 P.M.
11th	S	Royal Botanic Society at 3.45 P.M.
12th	SUN	SEXAGESIMA.
13th	M	[11 A.M., Annual General Meeting at 3 P.M.]
14th	TU	Royal Horticultural Society's Fruit and Floral Committees at
15th	W	Meteorological Society at 7 P.M. Society of Arts at 8 P.M.

THE ROMAN HYACINTH.

SINCE the discussion that has appeared in our pages relative to the merits of the blue Roman Hyacinth, and especially since we asked for the origin of the plant under this name, we have received several letters from English correspondents, but as none of them supplied the information requested we have been induced to examine the subject, and to communicate thereon with some authorities on the continent. The following is the result of our investigations.

What is called the Roman Hyacinth is not the *Hyacinthus romanus* of botanists, but a variety of *Hyacinthus orientalis*, which blooms in winter, and hence it was named by Gerarde and Parkinson, to whom it was well known, *Hyacinthus orientalis brumalis*. The latter of these describes it so fully as to leave no doubt that the plant then cultivated is identical with that now grown in the present day. He says—"This early Iacinth riseth up with his greene leaues (which are in all respects like to the ordinary Orientall Iacinths, but somewhat narrower) before winter, and sometimes it is in flower also before winter, and is in form and colour a plaine white Orientall Iacinth, but somewhat lesser, differing onely in no other thing than the time of his flowering, which is alwayes certaine to be long before the other sorts."

The Roman Hyacinth as now grown was not known to the gardeners of the last or even of the present century till within twenty years ago. Since then it has gradually risen in favour for its early forcing qualities and for the supply of cut blooms. At that time the quantity imported was small, and they were supplied by the great Paris house of Vilmorin, by whom they were grown in the south of France and on the Riviera, where the *Hyacinthus orientalis* is found indigenous. The question may therefore well be asked, If the Roman Hyacinth has been so recently brought to the knowledge of modern gardeners, how came it to be known to Parkinson and the early British botanists? The answer is not a difficult one when we consider that so many of our introductions at that time were from the shores of the Mediterranean and eastern Europe, where our great trading communications lay. We have but to refer to the writings of Gerarde and Parkinson to be informed of the numbers of plants that were brought by trading ships from the Levant and the Mediterranean. John Tradescant, who was the friend of both, made voyages thence to collect plants as well as "to fighte the pyrates," and Parkinson never tires of acknowledging his indebtedness to him in such expressions as "It was sent to me by my especial good friend Iohn Tradescante, who brought it among other dainty plants from beyond

the seas, and imparted thereof a roote to me." The Roman Hyacinth was therefore most likely to attract the attention of a lover of plants exploring those regions, and to be brought home as a valuable addition to our gardens.

The Roman Hyacinth as now cultivated is an early blooming variety of *Hyacinthus orientalis*, from which the Dutch Hyacinths have also had their origin. But the Roman Hyacinth is nearer the normal form of the species, while the Dutch Hyacinths have been so marvellously evolved out of the same by the industry and intelligence of the Dutch florists. There is also another race called Parisian Hyacinths, which retain the normal form of the species, and which are grown for their early blooming properties, but they bloom later than the Roman. A communication which we have received from M. Henry Vilmorin will throw some light on this subject.

"I consider the Roman Hyacinth a mere variety of *Hyacinthus orientalis*, very likely a seedling, very widely propagated on account of its pure white colour, earliness, profuse flowering, and rapid increase. It is different both in habit and time of flowering from the Parisian Hyacinths. The one nearest to it amongst the latter is *Jacinthe Blanc de Montagne*, which is more slender, not so snow white, and slightly earlier when grown under similar conditions from bulbs of identical origin. But *J. Blanc de Montagne* from bulbs grown at Paris is not so early as *J. romaine* (Roman Hyacinth) from bulbs grown in the south. There are some points still rather obscure in our notions of the action of climate on the earliness of plants. I am positive, having tried it, that bulbs of the Roman Hyacinth from the south bloom before similar bulbs grown in the north of France.

"This pretty white Hyacinth, together with a pale blue one like it, but bigger and more slender, much less floriferous, and altogether practically worthless, has been grown in Italy and on the Riviera for a long time, hence I think the name of Roman Hyacinth, which is a French one, and which has been in use for a score of years at least, although the trade in bulbs of this plant with your country has not been very active till the last ten or twelve years. I think the white Roman Hyacinth is the best early white, provided its bulbs come from the south, where we invariably grow them. Of blue and rose single kinds Parisians, in my opinion, are the best early and cheap kinds.

"I have not seen the plant grown in England as Blue Roman. If it be really the pale blue one grown on the Riviera, and especially at Genoa, it is vastly inferior to Parisienne single blue. Its only merit is earliness, but the flowers are so small and dull that any Squill is as good, and *Scilla siberica* a good deal better."

M. Maurice Vilmorin has also obligingly sent us the following letter on the subject, in ignorance of what his brother had written above, and on that account not the less acceptable.

"Some forty or fifty years ago our firm were in the habit of buying a few hundreds of those bulbs, which were cultivated at that time in the neighbourhood of Marseilles. I am making inquiries to trace the culture further back. Jordan has the Roman Hyacinth as a native plant in the south-east of France under the name of *H. præcox*, but our best authorities here consider the plant as a variety of *Hyacinthus orientalis*. The same can be said of *H. albulus*, *Jord.*, or *Blanc de Montagne*, which is only a variety of *H. orientalis*. The Roman Hyacinth is found wild in the south-east of France and Italy. It may have been grown or sold first at Rome, and the name be so far justified. The flowers are, as a rule, pure white, but I think some plants have been found with a pinkish shade. *Hyacinthus romanus*, *Linn.*, is not the Roman Hyacinth. It is the *Bellevallia appendiculata*, *Lapeyr.* ('Hort. Arb.' p. 186; figured also in the 'Bot. Mag.' t. 939), a native plant of France, but more like a Muscari than a Hyacinth."

The question as to whether there is a blue Roman Hyacinth, which is exercising the minds of some gardeners doubtfully, is also answered by Parkinson when, speaking of "the Purple Winter Orientall Iacinth," he says—"The difference of colour in this flower causeth it to be distinguished, for else it is of the kindred of the Orientall Iacinths, and is, as the former, more early than the rest that follow: Vnderstand then that this is the same with the former, but having blewish purple flowers."

The same description is confirmed by Rea, who, speaking of "The Early White Oriental Jacinth," says—"There is another of this kind that beareth purple flowers that come as early, for which property they are chiefly respected." So that, although the purple variety is not so extensively cultivated nor so well known as the white, it is nevertheless as old, and appears to have been co-existent with it. The reason of its being less cultivated may be accounted for by what M. Vilmorin says respecting its worthlessness. But we have recently had a blue Roman Hyacinth brought to our notice, and which has lately been a subject of remark in the pages of this Journal. We were at first induced to believe that this was really a variety of the Roman Hyacinth; but to make sure that our surmise was correct we communicated both with M. Henry Vilmorin and Mr. Krelage of Haarlem on the subject. The reply of the former we have already given, and having sent Mr. Krelage specimens of what were represented to us as the blue Roman Hyacinth, we now give his reply, which will, we are sure, be interesting and acceptable to our readers.

"I have just received your box with flowers of blue French Hyacinths. It is without doubt the true single blue French Hyacinth, called now a-days in England the blue Roman Hyacinth, probably to make it sell better. There is a great difference in forcing this blue form with that of the true white early Roman Hyacinth with a white or yellow bulb. The latter can be had early in flower in December, and even in November if treated accordingly; but with the same treatment the blue form is at least three weeks later. There is a white French Hyacinth with a blue bulb, also one called Italian White with a violet bulb, which flowers just at the same time as your blue Roman—viz., about three weeks later than the earliest Roman White. It is probable all these forms are different varieties of the *Hyacinthus orientalis*, which must have been always cultivated in southern regions to keep their properties of so early blooming. It is a fact when the earliest white Roman Hyacinth is cultivated here several years in the open ground it becomes later and unfitted for the earliest forcing.

"In former years we had here a form of *Hyacinthus orientalis* which flowered in January and February in the open ground, with small blue flowers. It was called *Januarius*, and I suppose it is now lost. It was a very different plant. This form always remained as early as before. It may be that in very old books some of these French forms are already described. I have an idea that some of them might have been cultivated unaltered for a long period. On the contrary, the old forms of *Hyacinthus orientalis* have been abandoned, to be replaced by better varieties.

"There is certainly some interest in the history of the old forms of Hyacinths, but it is a difficult matter, which needs study in a great number of old books. I have many of them under my hand, but have not yet found leisure to go into the matter.

"The wild oriental Hyacinth is probably some other form, and even here we must, I suppose, be prudent in making conclusions. The Hyacinth is, as well as the Tulip, a very variable plant, and it seems to me probable that in a wild state there are to be found several variations, and that there are found of them now more than there were two or three hundred years ago when the first forms were examined. The recent researches of Dr. E. Regel have proved that in Tulips in the wild state of a great number of species more than one variety has been found. Something similar may have occurred with the Hyacinth, and then in earliness the wild form may sometimes be improved by cultivation."

The plants that were sent to us by Messrs. Jones & Sons of Shrewsbury appear, without doubt, to be the blue French or Parisian Hyacinths; and if the examples sent to us by "A CULTIVATOR OF BULBS," which were smaller and inferior, were obtained from Italy or the Riviera, the differences between our correspondents are in a great measure reconciled, for M. Vilmorin describes the variety from the sources indicated as "practically worthless," the very verdict arrived at by a correspondent who is one of the most extensive private growers of Hyacinths in Britain.

VINES AT LONGLEAT.

(Continued from page 87.)

MAKING THE BORDERS.

MANY who have seen the luxuriance of the Vines here have exclaimed, "Ah! they have something under them," and have been rather incredulous when the

nature of the border was explained. The truth is, too much importance is attached to the composition of soils for Vines as well as for other plants. Given a medium for the roots which is of a suitable texture, is well drained and not too rich in decomposing matter, or not actually poisonous, every requisite may be added at any time from the surface. Were I starting Vine-growing on any but a clay subsoil I should not hesitate, if there were 20 inches depth of soil, to plant Vines with no more preparation than I should make for an Apple tree. We know that men of great ability and reputation have said that you cannot overfeed either a Rose or a Vine. I have proved the fallacy of this as far as the Rose is concerned, and hope some day to do as much for the Vine. What is there in the nature of a Vine to require such rich material? True, it bears a heavy weight of fruit compared with its own weight, but not more so than a Gooseberry or a Currant, and a very great proportion of that fruit is simply water. I am aware that those who have won great honours at exhibitions have had expensive borders, and for that reason I have always considered that they receive more credit than is due to them, for probably were some of them to attempt to grow fruit for market they would fail to make ends meet. When a man can add a yard wide of new compost to his Vine border every two or three years Grape-growing should be an easy matter. It makes him independent of the nature of the soil, because in any soil on which a tree will grow, a Vine can be made to produce excellent Grapes for at least a year or two. True, it may be short of some of the necessary ingredients, but none of these can be altogether absent. A further supply in a couple of years will keep them going all right, and the special deficiency may never be discovered. But all this is haphazard work, and will not pay in the commercial times to which we are all fast drifting. We must endeavour to know what a Vine needs, and be able to supply it in a less cumbrous mode than by carting scores of tons of fresh turf every other season. Perhaps I am not without a suspicion of the fox's complaint in this matter. As I have been unable for several years to obtain fresh turf I may as well decide that it is not necessary, and I admit that I should have continued using it if I could have had it. On the other hand it is good that I have learned to do almost without it. "But you had an enormous quantity to start with," says someone who knows. True, but that which was turf twelve years ago and has had Vines growing in it ever since is not turf now, and I do not hesitate to say that the natural soil in most places would be more durable.

The reason plants grow so well in fresh turf is—First, because the roots of the grass keep it in good condition mechanically; secondly, because the continuous decay of these roots furnish the necessary food derived from a vegetable source; and thirdly, because of the minerals contained in the soil. Some of the latter may be deficient, but if fresh additions are made at short intervals the plants will find all they want, for they are good foragers. Now, though in fresh turf we have a sure medium of supplying all these necessities, it is quite possible and less expensive, when we know how to do it, to supply them in other ways. I do not pretend to know all about it, but in feeling my way I have not been without some success, and hope for much more.

My borders, which it will be remembered are entirely

inside, are from 2 feet 9 inches to 3 feet deep, and as their total length is 72 yards, and their breadth 10 yards, they contain about 700 cubic yards of soil. To this was added 2 tons of crushed 1-inch bones, and in one compartment where the soil was thought to be rather heavy a few loads of charred rubbish were added. The turf was ploughed up by an ordinary plough to the depth of $2\frac{1}{2}$ or 3 inches, and was at once packed as closely as possible in the house, all crevices being carefully filled with the loose soil which broke off the turves during removal, special attention being given to the sides of the walls, where there is very apt to be a crevice such as might take away much of the water given to the plants. During the process of building up the turves a few of the bones were sprinkled on, and in the compartment where charred refuse was used, that was sprinkled on in the same way. There was considerable warmth in the borders during the first season caused by fermentation, and a fine crop of Mushrooms was produced naturally. These borders were not without their faults, as I shall show further on.

RAISING THE PLANTS.

These were raised from eyes in the usual way. They were placed singly in small pots early in January, 1870; kept for a week or two in a cool house, then transferred to a temperature of about 55° at night, where they were plunged more for the sake of preventing the soil in the small pots becoming too dry than for the sake of bottom heat, which is a questionable luxury. As soon as they had produced a few roots they were shifted into 8-inch pots without removal from the house in which they were growing, the soil being previously warmed. Plunging was now dispensed with, and the young plants were kept on a moist bottom in a light position. They were not stopped (as I had had experience with that plan, and had come to the conclusion that it was a faulty one), but were grown on as much as possible without a check of any kind, and were supported with small stakes before they were high enough to fall over. The benefit arising from stopping young Vines when they are about 9 inches high is only an imaginary one. It is quite true they thicken just at that time faster than those which are allowed to extend upwards unchecked, but if in a fortnight or three weeks' time you were to take the unstopped Vines out of their pots, wash the soil off their roots, and balance them against those which had been stopped, you would find the unstopped Vines were the heaviest; and not only is this the case, but they reach their allotted length the soonest, ripen the soonest, and swell the most regularly.

The portion below where a young Vine has been stopped frequently hardens before the upper part, and refuses to swell freely towards the end of the season. I am speaking of young Vines grown in full light and treated liberally, not of such as are grown crowded together and under the shade of other plants, as is frequently the case. When a length of 8 or 10 feet is reached they should be stopped, and unless they are very vigorous and there is a danger of some of the principal buds bursting which it is desirable to keep till another year, they should be kept to this length whether they are intended for fruiting in pots or for planting out. The laterals also should be kept to one leaf.

PLANTING.

Midsummer, 1870, found two of the compartments

ready to receive their tenants. I had the choice between those plants which were raised the year before, had been cut down and had now made a vigorous second growth, and the smaller Vines which had been raised the same season. I preferred the latter, and have reason to think from subsequent experiences that my choice was the right one. These young plants, now little more than five months old, were placed in the house a day or two before planting so that they might become used to the larger body of air; the positions for planting them in were marked, and the soil for about 18 inches wide and a foot deep was chopped up with a spade; a little older soil, such as would crumble in the hand, was mixed with it, and the plants were transferred from their pots with all possible care so as not to break or injure a root. The crocks at the bottom of the pot were not removed from the ball, but it was turned out and planted entire, and the soil of the border was pressed as hard against it as it was possible to do without injuring the roots. A piece of paper was hung over the plants for a day or two during sunshine, and they soon continued growing as if nothing had happened.

I have no doubt it may appear to some that I am giving unnecessary minute details of this very simple operation, but I may here state that I never do see anyone take sufficient care when transferring a plant grown in heat from one pot to another, or from a pot to the border. If it is not done so that the plant cannot feel it, if a leaf droops or growth progresses more slowly after the operation, you may depend that due care has not been taken in some respect, that time has been thrown away, and an effect the reverse of beneficial produced on what the operator may consider the object of his greatest care. Attention to this very little matter is one of the principal secrets of such success as I have attained. I have tried to inculcate this lesson into young heads, but despair of doing so. Could they feel as I do, a shiver run through them when cold soil, cold water, or cold air is known to come in contact with plants luxuriating in a high temperature, perhaps it would make them more thoughtful. This degree of sensitiveness may appear incredible to some, but I certainly do feel it, and I also feel a very unpleasant sensation when I see either the roots of a plant, choice fruit, or choice flower treated roughly.

The Muscats were planted in the middle compartment at about 7 feet apart, 18 inches distant from the side walls, and with the exception of one Golden Champion they had this compartment to themselves. The compartment at the south end had a more miscellaneous collection, but they were all, as I supposed at the time, late Grapes. These were planted about $4\frac{1}{2}$ feet apart, and consisted of one Trebbiano, one Mrs. Pince, one Strawberry or Fox Grape, two Madresfield Court, two Muscat of Alexandria, one Gros Guillaume, ten Lady Downe's, and eighteen Black Alicante. There now remains of this collection two Alicante, two Lady Downe's, and one Mrs. Pince, while in the Muscat house Golden Champion has long ago disappeared, and there only remains four Muscat of Alexandria. These young Vines, as I have said, were planted along each side of the house at 18 inches from the wall. The older Vines which had been grown the year before were planted along each side of the centre of the house and formed an archway over the path, where they remained a couple of years to produce a little fruit while the

permanent plants were being trained for the production of future supplies.

The larger Vines were also planted with the balls of roots entire. The holes being made to receive them, they were placed in position while still in their pots; the pots were then broken with a hammer, the sides pulled out, and the bottom part left in. The soil was then rammed as tightly as possible round about them as in the case of the younger Vines, and they also went on growing without a check. The new soil, keeping moist from the continuous decomposition going on, did not require much water during the first season.

I have no doubt the distance I have given for Muscats—viz., 7 feet, will seem great to those who have only seen them planted 2 or 3 feet apart, but I may tell my readers that 7 feet is not too wide for the rods to be apart, and possibly 10 feet would be better. Black Grapes may be grown well with the rods only 4 feet apart, but Muscats, to do them justice, for reasons which I will endeavour to give, require double that room. It hardly signifies how dense the foliage is immediately over a bunch of black Grapes of any variety: provided there is sufficient of its foliage exposed to the light and air, and the treatment is fairly good in other respects, that bunch will colour. But it is not so with Muscats—they will not colour properly under crowded foliage. It always seems to me that this fruit must have a certain amount of diffused light reaching it through all the season, or it will never assume that beautiful soft amber colour which is always desired but seldom attained. It is quite as profitable to grow Muscats thus as it is to grow black Grapes the other way, well-grown Muscats being always worth double as much as other Grapes; and I may say that if my Muscats were all sent to market they would pay better than any crop in the garden.—WM. TAYLOR.

(To be continued.)

ACROSTICHUM CRINITUM.

ACROSTICHUM CRINITUM, or the Hog's-ear Fern, as it is sometimes called, is rarely seen in good condition. It is a handsome Fern when well grown, but I think its cultivation is not thoroughly understood. I have had strong plants produce good stout fronds which properly developed, but in a short time they have turned brown at the tips and edges. Some say it is caused by being kept too dry, others that it has had too much water. But I do not think either is the cause, but that the Fern is potted in too heavy a material. I have a good plant now placed some time since on an old Tree Fern stem about a foot long. I made a hole at the top of the stem large enough to admit the ball of the plant, and since then it has grown very rapidly. The fronds are not disfigured now as they were when grown in soil. Probably this species is one of the many Ferns which is found growing exclusively on trees or rocks. The barren frond is often from 12 to 18 inches long and from 6 to 9 inches broad, the base is rounded, and the apex blunt. Both the upper and under surfaces are covered with long hairs or bristles, which is very suggestive of the hog's ear. The fertile fronds are much like the others in form, but smaller and destitute of hairs on the under side. It is a native of the West Indies and Mexico, therefore requires a stove temperature.—W. K.

POTATOES SPROUTING—A NEW EARLY ROUND POTATO.—Permit me to say a word on each of these subjects, and first to thank Mr. Iggulden for the information imparted in his two communications. The subject is of considerable importance, as undue premature sprouting—prevalent this year more than usual, owing to the comparatively high temperature and humidity—deteriorates the sets, except you intend to use them sooner than lose the growths made. I have chanced planting from boxes some valuable early varieties, and they have grown on almost unchecked. I do not agree with some of "SINGLE-HANDED'S" theses, but Mr. Iggulden has disposed of most of them. I have received tubers of Carter's new early round

Potato, "Eight Weeks," and with them what seems a solution of the sprouting difficulty. They seem to have been puddled and then dried in retentive clay, and are only slowly moving even now, as the puddling or claying-over seems equivalent to a hermetical sealing. The point is worth notice.—W. J. M., Clonmel.

HORTICULTURAL LITERATURE.

YOUR Journal always reaches me on Thursday evening. On the 26th ult. my family attended a village concert, leaving me at home in my glory reading the first horticultural news of the week. The leader on page 65 by Mr. Iggulden is an excellent one, full of sound sense and practical information. I quite agree with him respecting carrying the flues inside the house. I have worked many of these flues and know their usefulness, and in these times of depression it behoves all of us to practise economy to the letter. I am delighted this subject of heating is taken up by such a competent man, and I feel sure that to many of your readers his notes will be equally welcome.

Turning over the pages I come to Mr. Taylor, who so ably describes how to make Vine borders. Seldom has so much been said in so few words. It is the very essence of good practice that all will find successful if they will give it a trial. Mr. Taylor observes that some may say 2 or 3 inches of rubble with so many drain pipes afford sufficient drainage; but what a forcible truth is the answer!—"We make Vine borders to last a century." There is no man that writes to the horticultural press who says so much in such few words as the able gardener at Longleat; although some of his practice differs from my own, nevertheless, I look upon him as having a brilliant future before him.

After reading two such excellent papers I came across the book review, "The Rosarian's Year-Book, 1882." The graphic description of "Our Flower Show" is both amusing and interesting; and if the good old Scotch doctor speaks the truth when he says, "Whenever I see a dancing bear come into the town no more practice do I get for a fortnight;" in consequence of making all the doctor's patients laugh they suddenly become well. Let us hope the description of "Our Flower Show" will have the same effect on your readers. The fact is there are no better gardeners than clergymen. They can crack a joke amusing, interesting, and to the point; they are also good judges of men, and the worthy Editor of "The Rosarian's Year-Book" has made a happy selection of coadjutors to aid him in his work.—R. GILBERT, Burghley.

NOTES ON VEGETABLES.

BEST EARLY PEA.—Of the early varieties of Peas I have grown the preference is given to Harbinger, a comparatively new variety raised by Mr. Laxton. It was, I believe, generally distributed in the year 1874, yet strange to say it has failed to gain favour, and now is not catalogued. I have annually saved seed, and I am surprised to note that whereas William I. is annually becoming later, Harbinger is becoming more precocious. The spring of 1881 was far from being favourable to the earliest crops, yet we had abundance of Harbinger fit for use during the third week in May, while William I., under precisely the same treatment, was fully nine days later. Harbinger grew to about 3 feet in height, was very prolific, and the pods well filled with peas of fairly good quality. William I. grew to 4 feet in height, and was inferior in other respects with the exception of colour. Earliest of All, being distributed by Hooper & Co. of Covent Garden, London, was kindly sent by the raiser, Mr. Laxton, for trial. Unfortunately it was not received in time to give it a fair trial, and I can therefore only say it much resembles Harbinger, and for this reason I strongly recommend it to the Pea-loving public. It is, however, considered by its raiser fully a week earlier than Harbinger, and I hope he is correct in his assertion.

TWO GOOD CABBAGES.—These are Hill's Incomparable and Suttons' Reading All Heart. The former, first received from Messrs. Osborn of Fulham, I have grown for three seasons, and it invariably proves profitable and good. It can be planted closely, as it is close-growing, and the conical heads are very good in quality. All Heart, received from Messrs. Sutton as a novelty last season, proved a decided acquisition to our list of varieties. It is of quick growth, forming good-sized conical heads with but few outer leaves. Quality all that can be wished. Owing to its smoothness of leaf probably it was the least infested by caterpillars. The latter were much too plentiful, Ellam's Dwarf being completely riddled by them.

GIANT ZITTAU ONION.—I am pleased to note the good keep-

ing quality of this variety, At present it is quite as sound as the Brown Globe and James' Keeping, and as it is much heavier, being besides very clear in the skin, it will to a certain extent supersede these varieties. A less quantity also will be grown of those varieties of the White Spanish type, such as Nuneham Park, Reading, and the Banbury, these not keeping so well as might be desirable.

NANTES HORN CARROT.—I am particularly fond of this variety of Carrot. It is the best for forcing, sowing on warm borders for the main crop, and for pulling throughout the winter. It is quick in growth, invariably of good colour and quality, grows to a good size, makes but little leaf growth, and keeps well. A more profitable and generally excellent variety I believe it impossible to find. I do not wish for a better.

EARLY MUNICH TURNIP.—We cannot afford to dispense with this Turnip on account of its superior earliness, but in point of quality it is much inferior to any of the selections of Snowball sent out under various names. I make one or two early sowings on an east border, afterwards relying entirely upon the older varieties, Early Munich only being fit for soups.—W. IGGULDEN.

LILIUM AURATUM—THEN AND NOW.

"THEN" means nearly twenty years ago, or, to be precise, July 22nd, 1862, on which date the Royal Horticultural Society awarded a special certificate to Messrs. James Veitch & Sons for the above Liliium. It had been exhibited, however, three weeks previously at the Society's Exhibition, and Mr. Beaton described it at the time as the "grandest flower of the Show—the most magnificent new Lily from Japan, and the Princess Charles of Hesse was the first lady in Europe who smelt that flower in public, and was delighted with its fragrance." A more technical description that appeared in the Journal about the same time is interesting alike because of its accuracy, and as enabling us to better appreciate *Lilium auratum* as it was then and as it is now.

"This is the grandest of all Lilies. The flower is borne upon a purple stem about 2 feet high, and the thickness of a goose-quill; and in shape it forms a wide-mouthed shallow bell 10 inches in diameter, the six divisions of which the perianth is composed being about 2½ inches across at the widest, curled back at the point, towards which their outline is undulating. The colour is snow white, thinly but regularly strewn with oblong purple dots and markings; and a broad band of golden yellow runs down the centre of each division nearly to the base, where the purple markings become elevated above the surface into short bristles. The stamens have reddish-brown anthers which tremble with the breath, and projecting beyond these is the dull purple stigma; the whole forming a conspicuous and elegant centre. In addition to its beauty the flower possesses a powerful but delightful fragrance, partaking of that of the Orange blossom and the Honeysuckle. The leaves are narrow-lanceolate, acute-pointed, and of a very dark green.

"We were informed by Mr. J. G. Veitch that he found the plant growing wild on the hills in the midland provinces of Japan, and in places where from 14° to 16° of frost occur in winter: there is, therefore, every probability of its standing out of doors with us. To the same gentleman we are also indebted for the following information: 'The flowering season is July and August, at which time it is common in situations exposed to the sun. It grows 1½ foot to 2 feet high, and is remarkable for the size and fragrance of the flowers. The roots are boiled by the Japanese and eaten like Potatoes, and in flavour they resemble the Chestnut.' On another plant there is a bud 6½ inches long, which will shortly open, and there are indications of others forming in the axils of the leaves, so that it is probable that the flowering may not be merely terminal."

Thus the plant which caused such a sensation "then" had a stem "like a goose-quill" bearing a solitary flower; but how different is the result now! The prophetic indication that the "flowering may not be merely terminal" has been abundantly fulfilled. On page 295, vol. xxix., September 30th, 1875, it is recorded that there were three clumps of Liliiums, each the result of three bulbs that had been planted, bearing 250 flowers, and on four stems in one of these clumps there were 130 flowers. These were not fasciated stems, one of which I have seen bearing seventy-five flowers. Such is the advance in numbers. From the "goose-quill" stem then (1862) some stems of Mr. McIntosh's plants measured 3½ inches in diameter, and one was 11 feet high. The plants were growing in Rhododendron beds; soil, sandy loam with an admixture of peat and decayed vegetable matter; sub-soil also sandy and moist; plants, therefore, what we may term naturalised in English gardens far surpass in vigour those described by Mr. J. G. Veitch as growing from 1½ to 2 feet high in Japan. Still such dwarf plants freely flowered are not uncommon, and valuable they are for many decorative purposes. In reference,

however, to naturalised Lilies, the finest example is probably in Mr. G. F. Wilson's wood of them, which contains approximately some fifty thousand bulbs, and their growth and increase indicate that they are quite "at home."

From a cultural point of view the advance that has been made in this fine Lily is thus both striking and gratifying, and equally so the change that has been effected in an inverse order—namely, the cost of the bulbs. A bulb that produced one flower then cost twenty times more than one does that produces twenty flowers now. Indeed the bulbs are so cheap that they should be planted everywhere.

They are imported in hundreds of thousands annually from Japan, and although not common enough to be "eaten like Potatoes" they are within the means of all, or nearly all, who cherish their gardens. Formerly imported bulbs arrived in a shrivelled condition, and not a few of them decayed after being planted; but now vast quantities arrive in a fresh sound state, and few fail to grow when carefully planted and at the right time. The Japanese adopt a very intelligent mode of packing the bulbs. Each is surrounded with a compost of which clay is the chief ingredient; this is often half an inch thick, and while it does not crack and allow the escape of moisture from the bulb, it is yet easily removed and crushed into powder. These round balls resemble large nuts, of which the bulb forms the kernel. As hundreds of readers have not had the opportunity of seeing this mode of packing, it is shown much reduced in fig. 24, the example having been

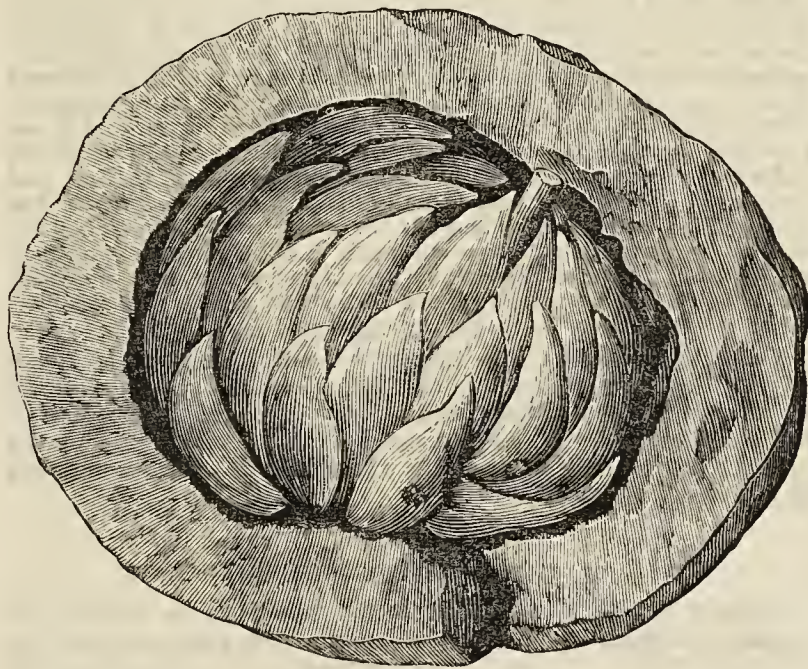


Fig. 24.

taken indiscriminately from many thousands in Messrs. Carters' warehouse in High Holborn; and although the case from which it was taken was packed in October, the bulb is now perfectly sound and fresh. Still, in purchasing bulbs at sales they must be taken as they are, and they, of course, do not equal in quality those that have been selected and are now sold cheaply by nurserymen and seed merchants.

As might be expected, the cost of *Lilium* bulbs varies with their size. Even within recent years from 10s. to £1 have been given for bulbs of extraordinary size at sales, in the hope that correspondingly grand results would follow in the garden. But have they followed? It is reasonable to suppose that these monster bulbs will disappoint the cultivator as often as they will reward him. They have reached the zenith of their vigour, and the next step is decline. A firm bulb 2½ to 3 inches in diameter will, as a rule, give better results than bulbs as large again will—at least such is the teaching of experience, and the hint may be given for what it is worth.

The present is an excellent time for planting Liliiums, always choosing a day when the soil is sufficiently dry to be worked cleanly. As above mentioned, sandy loam and vegetable matter form an excellent compost, but they will grow in any deep, well-drained, fertile garden soil. Water they delight in when growing, but stagnant soil they abhor. Sand used liberally round the bulbs causes water to pass them quickly, leaving them sound; whereas if it settles round them, especially those newly planted, it causes decay. They should be covered from 3 to 5 inches deep according to their strength with light, gritty, vegetable soil, and mulched with cocoa-nut fibre refuse or manure. The refuse mentioned is valuable for mixing with heavy soil for Liliiums,

and, like the bulbs, is cheap enough to be used freely where it is needed.

Lilium auratum established in large masses produces a gorgeous effect in gardens, and fills them with perfume. The plants are equally valuable for conservatory decoration, and especially if they can be induced to flower in the winter, as it appears they may be, judging by some plants grown by Mr. Record, gardener to C. A. Hanbury, Esq., Belmont, some of which were as fine in January, with others following, as they are often seen in August. The following is the history of these plants as communicated to me by Mr. Record:—

"The bulbs were bought in April, and a few medium-sized bulbs, but plump and weighty for their size and season, were selected with the object of endeavouring to have *Lilium* flowers in winter. I laid the bulbs on a damp brick floor, and covered them with fine sandy soil till the second week in July. This kept them from shrivelling. They were then potted singly in 4-inch pots, in a mixture of very sandy peaty soil; but first of all each bulb was wrapped in sand and chopped moss, they were afterwards plunged in cocoa-nut fibre until they had rooted and the crowns started. They were then placed on the floor of a cool greenhouse, the crowns being covered for a time. When far enough advanced they were placed on the stage of the same house until the stems were a foot in height. During this time the bulbs made scarcely any root, but began to emit roots from the stem (of course, I know that would be the case with bulbs growing quite out of their natural season). I therefore saw that to sustain them the stem roots must be my means of culture for success. I therefore did not repot them, but placed them in 24's on good drainage, with the space between the two pots filled up with moss. A little soil was added at intervals for the purpose of supporting the surface roots, the consequence was that the plants grew freely and set their buds. Just before that occurred they were all transferred to a warm greenhouse, when instead, as one would have supposed they would grow still higher, the buds swelled off well, and those that have flowered have been large, well shaped, and good in colour, having a pleasant perfume, not nearly so strong as if they had flowered in the summer, and therefore more agreeable. Water has been applied very carefully and not much given at a time. They are now having liquid manure twice a week, and are growing in a warm greenhouse. If I had grown them in a higher temperature no doubt the buds would have turned yellow. They just want a growing temperature where they can be kept syringed and clean."

The Belmont plants were from 2 to 3 feet high, each stem producing six to seven large flowers. There is thus a great difference as regards *Lilium auratum* in 1862 and 1882; and every step in advance—better bulbs, lower prices, and the amenability of the plants to be induced to flower in winter as well as in summer—is in favour of cultivators.—J. W.

A FEW DIFFICULTIES.

BORDER AURICULAS.—When is the best time to divide and replant Auriculas which have been four or five years unmoved in an open border? Some six or seven years ago I was induced by some gardening authority to remove my plants, for the summer months, from the south border and to place them in a northern aspect shaded by a wall from the south; the consequence was that I lost above half of my plants. Since then I have left them undisturbed in a border at the top of a bank facing south, merely earthing-up the crowns once or twice a year when needed. But now the plants have grown so large, and the crowns on such long stems, that the mounds around them have become unsightly. Under these circumstances what is best to be done, and when to do it?—G. O. S.

MUSHROOMS DECAYING.—I think no crop causes me more anxiety than Mushrooms. Vegetables of all kinds in the open garden I can generally rely on yielding produce at a given time, and with flowers as a rule I have no difficulty; but Mushrooms trouble me and puzzle me. Sometimes the beds are good, but now and then a failure occurs that I cannot account for. One bed has produced thousands of Mushrooms about the size of peas, which turned brown and shrivelled, and few good examples have followed. On another bed the Mushrooms grow about as large as walnuts and never open nor increase in size. If we cut them they are hard, if we leave them they decay. The beds are made of droppings well sweetened, with a slight sprinkling of soil added. The spawn is inserted about the size of walnuts, and some is broken small and spread on the surface. The temperature of the beds were about 80° when spawned, and the house kept at from 60° to 65°. When I have a good bed it seldom lasts long. Will some of your practical readers kindly tell me where they think I am wrong?—J. WELSFORD.

CARNATIONS DECAYING.—I have a good collection of Car-

nations which I raised from seed received from Messrs. Vilmorin of Paris. They were strong plants and bloomed well. They were taken up, potted, and wintered in a frame, but lately they have been attacked by what appears to me to be a fungoid affection. The leaves are spotted with dull greyish spots, and this to such an extent as in some cases to ultimately destroy the plant. I have some that are now quite dead. Can any of your correspondents tell me the cause of this and the remedy? I have a suspicion that it is caused by allowing drops of moisture to form on the leaves, for the discoloured spots are just the size of drops of water. These appear to destroy the tissue, and then the parts are attacked by the fungus. In addition to keeping the foliage dry, I have dusted the plants with flowers of sulphur in hope that this may prove effectual; but I should like if some of your experienced Carnation growers would give us their views on the subject. Some young plants raised from layers in the summer are similarly affected.—AN AMATEUR.

PRUNUS SINENSIS FLORE-PLENO.

Few plants with which I am acquainted are more attractive during the winter and spring months than the above. Creditable plants are difficult to obtain unless they are grafted or budded, and these only succeed satisfactorily for a short time. When grafted their slender shoots appear to be dwarfed, and this deprives the plant of much beauty. I cannot understand why this *Prunus* is grafted when they can be raised so quickly by cuttings, which afterwards thrive far better. In two years plants can be produced with from six to eight shoots or more in 6-inch pots. Neat little specimens can be grown and bloomed the first season; but it is advisable to grow three or four together in the same pot. Large plants can be obtained in pots, but I consider small plants more useful; however, when the former are grown care should be taken that the base does not become bare. The temperature and treatment accorded Peaches suit this *Prunus* exactly.

With the flowers side shoots are produced, and these root readily when they have attained about 4 inches in length, and should be removed with a very small portion of the old wood. Six-inch pots should be filled with sandy soil, placing a layer of sand on the surface, and insert the cuttings without removing any leaves. When well watered they must be placed in the propagating frame or under a bellglass, and if kept close and well shaded when necessary nine out of ten will root. They should be transferred singly into 3-inch pots as soon as they have formed roots, for if left until they become matted together they are often checked, and will not start again during the season. If potted at once and placed in a Cucumber or Melon house they will produce shoots fully 2 feet long. Two or three can be placed together if deemed advisable, or the one shoot can be ripened and flowered, and are useful for associating with other plants.

After flowering they must be cut down within 6 inches of the pot, and when growths 4 inches long have been made the roots will be active, and the plants may be potted in 6-inch pots. A number of shoots will start from the small stem left, probably a dozen, which can be left if the cultivator wishes; but they seldom attain the length and strength that half the number would do. I disbud them as soon as they break into growth, the same as I treat our Peaches, and prefer a number of strong well-ripened shoots to a greater number of puny growths. After growth is completed and the wood fairly ripe they are placed outside in a sunny position to further harden and ripen them. When the plants become too large they can be thrown out, younger plants being employed, or after flowering reduce the roots and place them in smaller pots. I have chopped good-sized plants round with a spade, and they have succeeded afterwards, but it must not be done until they are growing. For a time they must be very carefully watered. In all stages of growth liberal applications of water should be given, and liquid manure when the pots are full of roots. After potting they should be carefully watered for a time until the roots are active, but in no stage should they become dust-dry.—COUNTRYMAN.

MISTLETOE PROPAGATION.—I was recently shown near this town many fine specimens of Mistletoe grafted on the common Apple. One small bush, notwithstanding the probable removal of many berries by birds, must have had a thousand still. It was not 2 feet in diameter. As many would like to possess such a novelty I may note that from this time forward is the best time for propagation, the seed being nearly ripe, and this is the simplest method. As the Mistletoe is a parasite the glutinous sticky berries must be attached to the bark of an Apple tree, or, if that is not convenient, the Thorn or Pear might be tried. They will stick with the pressure of the finger to

any part of the wood; but I prefer to make an incision and hide the seed from birds that otherwise generally carry them away. Some years must elapse before many berries appear, as they grow slowly. —W. J. M., *Clonmel*.



ON Saturday last the FOG IN LONDON was extremely dense and for several hours during the afternoon and evening, especially in southern districts, it became so thick that all traffic was stopped. In the morning, too, and on the previous evening, it was also very dense in some portions of the suburbs. It is said that many of the waggons and carts engaged in conveying vegetables to Covent Garden Market, instead of reaching their destination early on Saturday morning as usual, were so much delayed that they did not arrive until late in the afternoon.

— IT would seem that the CULTURE OF VEGETABLES FOR SALE IN ENGLAND is likely to become more profitable than has been the case in some recent years. As will be seen in our Home Farm article, it is stated that if the treaty with France is not renewed it will greatly interrupt the supply of vegetables which are largely imported thence every year, especially early in the season. The larger portion is usually sent over by back carriage at a small charge. If, however, the treaty is not renewed, whole freights will have to be paid, which will no doubt not only diminish the importation but considerably raise the prices here. This, however, is a better prospect for cultivators than it is for consumers.

— IN some districts vegetation is dangerously forward, but the lower temperatures we are now experiencing will have a tendency to check this undesirable advance. Some fruit trees, especially Pears, in the south were expanding their buds last week. We noticed at Chiswick several Pear trees with the buds so far advanced that it appeared a week's fine weather would cause them to fully expand. Such a condition with the temperature 12° below freezing point, as it was last Thursday, is certainly rather dangerous.

— MR. W. TAYLOR writes—"In the garden of A. R. Baily, Esq., Willow Vale, Frome, I was lately shown what was to me a NOVEL MODE OF STRIKING ROSES. Some cuttings were taken off and made about two months ago, and immediately buried in sand in a box and placed in a shed. A layer of sand was first placed in the box, then a layer of cuttings, another layer of sand, and then another layer of cuttings, till the box was filled and all the cuttings were out of sight. The sand was merely kept from getting dust-dry and that is all. I examined several of the cuttings and found them nearly all callused and ready to emit roots, which I have no doubt they would speedily do were they inserted where they could be shaded for a time. Mr. Baily's gardener told me that the idea was taken from an American paper, in which the writer stated, also, that he had inserted Pear buds on Quince shoots before burying them in the same way, and that on uncovering them the buds had taken and the cuttings callused."

— CONCERNING his treatment of CHRYSANTHEMUM MRS. CHARLES CAREY, "A GROWER" writes, "was grown in the ordinary manure in a very large pot, and allowed to make as many shoots as possible, which were disbudded at the usual time."

— RESPECTING the discussion upon CUTTING EARLY POTATOES "SINGLE-HANDED" writes—"As far as preventing Potatoes sprouting is concerned I quite agree with Mr. Iggulden, but he

seems to doubt that the starch in Potato tubers acts in the same way as the starch of Wheat or Vine rods. In former remarks this was put in the form of a query, for it has not, I believe, been certainly ascertained. Some further remarks upon planting Potatoes whole at certain times, and cutting them into smaller pieces than is common at others, must be reserved for another communication."

— MR. ALFRED WALLER, writing in "Science Gossip" for February, gives the results of some rather interesting observations concerning the relative proportion of COLOURS OF FLOWERS IN BRITISH PLANTS. The total number of species examined was 1143. Of these the plants with yellow flowers were 254, white 217, and purple 165, which are much more numerous than the other tints, and include more than half the total. Blue flowers are stated as 71, pink 41, red 26, and green 15, with a number of intermediate shades represented by a few species. They are also arranged under the months in which they flower, June and July including over 800, or nearly three-fourths of the total.

— AT this dull season, even though many plants are very forward in their growth, there is little on the rockery to please the eye, except, perhaps, a few Crocuses, and it is now that the MOSSY SAXIFRAGES appear to the best advantage. Such species as *Saxifraga hypnoides* and *S. caespitosa*, with their varieties, form neat tufts or cushions of a most lively green colour, and impart a freshness that is much appreciated when most occupants of such structures are far from attractive. They grow freely, flower abundantly, and are very little trouble, though they certainly should not be grown to the exclusion of other choicer plants.

— SEVERAL pretty early CROCUSES are flowering in gardens now; and brief as their duration is, they are well worth a place in the border or at the base of a rockery, as they very agreeably remind us of the approaching spring. Foremost is *C. Imperati* with its purplish-tinted flowers that in some gardens are now past their best, as this season they appeared early in January. *C. chrysanthus* is a striking contrast to the above, of very dwarf habit, and producing its rich golden or orange flowers in profusion. *C. Sieberi* has neat purplish flowers, very pretty; while other good forms, such as *C. etruscus*, *C. biflorus*, and *C. vernalis*, are fast advancing.

— "AMONG old but useful plants," writes an Essex gardener, "I greatly value *SPARMANNIA AFRICANA*, as for at least ten months during the year it affords flowers which are greatly appreciated by my employers. I have one large specimen 7 or 8 feet high, and a number of smaller plants, which I grow in 48 and 32-size pots for conservatory decoration. The large specimen supplies the flowers required; indeed, during the past year I cut many bushels from it. Easily grown and requiring very little attention, I consider this one of the most useful plants I have."

— MR. W. IGGULDEN writes—"I have a good batch of SUTTONS' READING PINK PRIMULA which proves very attractive to visitors. Though scarcely so robust as might be wished, in other respects it is most commendable. It is compact in growth; and the pyramid of bloom, of a pleasing shade of pink with a yellow eye thrown well above the foliage, renders the variety a decided acquisition. The trusses are very compact, and as the colour is so much admired I am venturing to pack them with other flowers for the town house. They are flowered in a temperature seldom much below 50°, and this apparently suits other strains of Chinese Primulas equally as well, or even better, than a lower temperature."

— "A CULTIVATOR OF HEATHS" considers that "the beautiful and useful *ERICA MELANTHERA* is not sufficiently

appreciated, even though it has become a market plant of considerable value. It is one of the easiest and quickest to grow, will stand almost any ill treatment, and yet well repay the cultivator for judicious care and attention. I think that its remarkable hardiness is not fully understood. Last year I had some plants in a frame all the winter; and though the temperature there on more than one occasion fell to 20° below freezing point, both soil and plants being frozen hard, the plants of *E. mcLanthera* did not appear to suffer in the slightest degree, and they are now flowering as well as could be desired. *E. hyemalis*, on the other hand, was killed in large numbers. The flowers of my favourite Heath are not, it is true, so showy and bright as some, but they are useful for cutting, and if tastefully arranged with other gayer flowers either in bouquets or for stands they are invariably admired."

— THERE is now a pleasing display of PRIMULAS AT CHISWICK both of the single and double varieties, though the latter have been in flower so long that they are getting past their best. Conspicuous among the single varieties are the richly coloured Chiswick Red; the fine purplish crimson *rubra violacea*; the peculiarly tinted *lilacina*, a good white variety; and *alba magnifica*, which is invariably greatly admired for the size, substance, and beautifully fimbriated margins of the flowers. Of the double forms the Old White is still invaluable, flowering profusely, while Mr. Gilbert's varieties continue to maintain their character. Mrs. Barron, with the similar forms *Marchioness of Exeter* and *Princess*, is excellent, the flowers of fine form, pure white, and freely produced on long pedicels, which admirably suit them for bouquets. King of the Purples is the best of the purple-crimson varieties; and Miss Eva Fish, though of a very unpromising habit, is worth notice for its curiously tinted flowers of the *lilacina* type.

— WE are informed that the Continental Company of Horticulture (formerly J. Linden) will shortly send out a NEW BEDDING PLANT, *GYNURA AURANTIACA*, which was thus described by Mr. N. E. Brown of Kew in the "Illustration Horticole" for 1881—"Gynura aurantiaca is a hardy plant belonging to the Compositæ, and is of such an ornamental character that is not surpassed by any other plant of the same class. The stem and leaves are clothed throughout their entire length with a thick covering of hairs, soft to the touch, and of a beautiful deep violet colour, which gives an appearance of the richest velvet to the plant. This is more especially the case with the young leaves, and when combined with the brilliant orange of the flowers, the aspect of the plant is superb."

— MR. R. P. BROTHERSTON sends us flowers of three good HELLEBORES, and at this time of year hardy flowers seem especially acceptable. One *Helleborus atro-rubens* is particularly fine; the flowers of moderate size, the sepals neatly rounded in form and of a comparatively bright reddish purple hue. This is the finest of the trio, and is suggestive of *H. abchasicus*, which also flowers at the present time. *H. pallidus* has white and green-tinted flowers of good size, and very abundantly produced on vigorous plants. The third appears to be a seedling variety of *H. purpureus*, but much lighter in colour. Another form flowering at this time and not without attractions is *H. guttatus*, which has white or greenish flowers dotted on the upper surface with purplish red.

— WE have received the ANNUAL REPORT OF TRANSACTIONS AND POSITION OF THE SYNDICATE OF BELGIAN HORTICULTURISTS presented by the Permanent Committee to the General Assembly on the 29th January last. It deals very fully with the action of the Syndicate in relation to the restrictions laid upon the importations of plants by some governments, by which the trade of nurserymen was injuriously affected. It also,

amongst other matters, supplies a full list of all the Ambassadors, Consuls, and Vice-Consuls of Belgium in all parts of the world.

— MR. L. KILLICK, Mount Pleasant, Langley, Maidstone, desires to have lists for the APPLE ELECTION within a week from the present date, and he will be glad to have the names of the "best twelve kitchen and twelve dessert kinds as a sequence for the season," from those who can obligingly send them to him, not to our office. Blenheim Pippin when named to be placed in the former section.

— THE "American Gardeners' Monthly" gives the following particulars concerning JAMES MARKEY, THE CELEBRATED POTTER—"On the evening of November 15th James Markey, who has gained a national reputation as an expert greenhouse workman, dropped dead of heart disease, near his residence on Jersey City Heights. Though only thirty-four years of age, he had been employed in the greenhouses of Peter Henderson for nearly twenty-three years—having begun at the early age of eleven years. In all operations in the greenhouse Mr. Henderson always claimed he had no peer for rapidity and neatness. In the operation of potting he daily did the work of two average men, and was paid accordingly. It will be remembered that some years ago when Mr. Henderson asserted in the columns of the 'Monthly' that James Markey potted 7500 plants in ten hours, several of our readers questioned the fact. Long since then Mr. Markey had far surpassed even that extraordinary record, and had repeatedly potted 10,000 in one day of ten hours; and on one special occasion, in April of this year, potted 11,500 rooted cuttings of Verbenas in 2½-inch pots; a feat probably never equalled or even approached. Besides being an extraordinary workman, few men of his years were possessed of such varied and comprehensive knowledge of greenhouse work. Mr. Markey was a native of County Meath, Ireland."

POTTING CALANTHES.

CALANTHES are annually becoming more generally grown, and they deserve it, as their lovely flowers are produced freely in a stove temperature throughout November, December, and January. The potting now needs attention, and therefore a few words upon the subject will be seasonable. They are started into growth in very small pots and shifted into larger pots later on, but as a rule they succeed best with only one potting. These pots may be of various sizes according to the strength of the pseudo-bulbs; three or four may be placed in a 10-inch pot, or singly in 6-inch pots, but the latter plan is preferable. Pseudo-bulbs of ordinary size in 6-inch pots generally produce two new pseudo-bulbs during the season as well as from two to six fine spikes.

We have just finished potting our Calanthes in the small size. As soon as the flowers were over the plants were kept a little dry, but were not removed from the pots until the new pseudo-bulbs were ready, then all the old material was turned out, the old roots being cut close at the base. The roots when fresh and growing are soft and fleshy, and they do not extend freely in a close soil, but they delight in a free open mixture and plenty of drainage. The finest Calanthes I have seen were growing in a mixture of rough peat, sphagnum, charcoal, and small potsherds. In this a surprising quantity of roots is formed, and when in full growth a little liquid manure aids them greatly. There is no danger of the blooms not opening freely, as this occurs only when the roots are half dead in a close wet soil.

Each pseudo-bulb is half buried in the soil rammed very firmly round them. After potting they are placed on a shelf in the stove, and little or no water is given until the roots are growing. Calanthes may be checked for the whole season if too much water be given before growth has commenced, but this evil is more likely to occur when the plants are in a close fine mixture than with the open compost recommended above.—M.

DOUBLE PINK BOUVARDIA.—A double-flowering pink Bouvardia is announced as having originated with Mr. David Allen, the gardener at Oakley Gardens, near Boston, the grounds of Miss Mary Pratt, whose name has been given to this new variety. The plants are

said to be free-growing and bear full and perfect trusses, quite permanent in colour. Apparently there will soon be in the hands of gardeners good sorts of double Bouvardias in as many colours and shades as of the single ones, now so generally raised and admired.—(*Vick's Illustrated Magazine*.)

NOTES FROM MY GARDEN IN 1881.—No. 1.

As I have found in previous years that the most convenient way to give experience during the year in gardening matters is to take note of what has come under my own eye in my own small garden; and as this has, I have found from correspondence, been valued by many readers, I shall again, without, I hope, wearying them, note those things that have most specially marked the past year with myself. My garden is small, as I have frequently said, and lays no claim to order in its arrangement nor to picturesqueness in its general appearance, while my small greenhouse 20 feet by 12 feet would be smiled at by many of our bigger men, and yet I think that no one can get more enjoyment out of their garden than I do out of mine. I do not boast of a gardener, the "parson's man" being a factotum, who has to drive (for I have given up driving myself), to attend to cows, pigs, &c., besides giving what time he can to the garden; and this past year a great misfortune befell him and me. Just at our busiest time—July, when Carnations required laying, Pelargoniums being attended to, and sundry other things to be looked after, he was attacked with severe illness, which for two months laid him by. I was myself much away at the time, and had it not been for the zealous exertions of my daughter, whom I have called my head gardener, things would have been very much worse. As it was Carnations could not be layered, nearly all my Pelargoniums were so crippled that they were not worth much, and but for the kindness of friends I should have been in a much worse plight.

It was not a favourable season, and many plants failed owing at one time to the intense heat and drought, and at another to the continued downpour of rain; and although the rainfall was about an average for us—28 inches, yet it was very unequally distributed. Thus, in the showery month of April there were only eleven days on which rain fell, and in July only seven, and in neither month was there three-quarters of an inch of rain, while in August, September, and October there were 10 inches, rain falling every second day; and, moreover, along with this dry weather in July we had most intense heat, which reached its greatest height about the time of the Sheffield Rose Exhibition. These were unfavourable conditions for gardening, and hence much of our pleasure was spoiled. Its effects will be noted by-and-by when I write of special cultures. I shall for the present confine myself to the greenhouse. My object of having flowers to cut all through the season has been quite accomplished. Camellias were somewhat more scarce with me, for as I had been obliged to sell my larger plants owing to their occupying too much room I had to supply their place with smaller plants. And here let me say in reference to complaints of Camellia buds dropping which have appeared in the Journal lately, that I have not for many years lost any of mine, and this I attribute entirely to never placing them out of doors. This is a very good practice provided you can be sure of their being properly watered; but it very often happens that they are neglected, and as the surface of the pots seems moist it is supposed that they do not require any water. Especially is this the case in rainy weather. Much of the rain is thrown off by the leaves, while what falls on the surface of the earth in the pot is looked upon as an indication that no water is required; and hence frequently when they are moved into the house it is found that the pots are light and the balls quite dry, or, on the other extreme, they are overdosed with water, and if the drainage is not perfect the soil becomes soddened. The misfortune is that the buds do not fall off immediately, but when they ought to begin to swell the mischief is seen. My plan is to place them after they have done flowering in my little annexe under the Vine. I have often been puzzled as to how the dirt gets on Camellia leaves, but I saw this winter very clearly how it happens. In going into the house one morning I saw one of the plants with every leaf covered with minute drops which had evidently exuded from them. One could at once see that any dust floating in the air would settle on this moisture, and soon a dirty place be formed. Frequent sponging is the only way to keep the plants quite clean.

I have been quite proud of two plants in my house this year—*Disa grandiflora* and *Lapageria rosea*. The former of these was in a large pan, and it had five flowering stems, one of these holding five very fine flowers. After it had done flowering I broke it up, and have placed it in two pans. The plants commenced growing very well, but all at once I was dismayed to find the leaves turning quite black. The centre of the plant seemed healthy, and so I

hoped for the best. I, however, submitted some of the leaves to Mr. Worthington Smith, believing that they bore some analogy to the Carnation leaves of which he had written in the *Gardeners' Chronicle*. He very kindly submitted them to microscopic investigation and pronounced that they had been attacked by nematoids, which must have proceeded from the soil; but it was very odd that neither the base nor extremity of the leaves was attacked. It was about midway, so it was a puzzle to me how they got there. However, the point was to get rid of them. I cut off the part affected; and although I must be prepared to find that the plants are not so vigorous, yet they appear healthy, and I find young growths shooting up in all directions, so that I believe the roots must be sound.

Lapageria rosea was perhaps rather a venture in so small a house, but I am glad that I tried it. The plant was one of Mr. Howard's of Southgate. I placed it at the end of the house. It sent out one growth, as I have already mentioned, about 12 or 13 feet in length, and bloomed profusely. The question has been hotly debated whether it does best in shade or not. I am inclined to think that it is so accommodating that it does equally well in either. Mr. Boscawen grows it in the open air and urges many to follow his example, and when it succeeds it must be most lovely.

As I have already said, Pelargoniums (Show kinds) were a failure with me, not so the very useful section of Zonals; for although they require for winter blooming a higher temperature than I care to give, yet I have had throughout the entire year a succession of blooms which are excellent for cutting. My varieties are mostly those of Pearson's raising, and I think no raiser has been so successful. Especially is this the case in the various beautiful shades of pink. The practice of growing annuals for winter decoration has come into vogue much lately, and I tried both *Browallia elata* and *Schizanthus retusus*. The former with its delicate blue flowers was quite a success; the latter I have been disappointed with, as it has gone more to leaf than flower. Of the herbaceous *Salvias* I like *S. Pitcheri* with its brilliant blue flowers the best. *S. Betheli*, although very fine, is hardly fit for cut blooms, and I have always an eye to this in most of the plants that I grow.

It may be of interest to say what I have in my small house now, and I have not been without a stand of cut flowers for the dining table throughout the winter. Roman Hyacinths, Paper White Narcissus, double Roman Narcissus, Cyclamens of various shades—I have a row of these, seedlings, forming the front row on each side of the stage—Azaleas two or three in flower, *Chionodoxa Lucilæ* with its lovely blue flowers, *Lachenalias* just coming in, a few Japanese *Chrysanthemums* not yet over, and Pelargoniums of various shades of colour. With these and fronds of *Adiantum* we can make up a tolerably good stand of flowers. Fuchsias I did not succeed with, as my frame is too hot and light for them; but this very failure served me. During the summer months they did nothing, as I could not give them the treatment they required, but as soon as the cooler weather set in they commenced to flower, and hence during the months of November and December I had quite a good supply of bloom from them.

Such is my record of my little greenhouse; and I am convinced if amateurs would make up their minds to what they want, and would not attempt impossibilities—not to try things that require more heat than they can give, they would have far more enjoyment out of their houses than many of my acquaintances seem to obtain.—D., Deal.

ROSES FOR SMOKY DISTRICTS.

IN districts where the air is pure many delicate Roses flourish which only dwindle and die in the smoky neighbourhood of towns. I have endeavoured to confine my list to those only that I have proved will not only endure the smoke but a few noxious vapours from chemical works as well. Under these circumstances the list is a limited one. I could have extended it considerably by adding varieties that would succeed in the neighbourhood of some towns. For instance, many others will thrive fairly well on the opposite side of Liverpool, near the river Mersey, where trees and shrubs grow with greater luxuriance than on this side. My object is to avoid giving a doubtful variety, and I hope those who may add to the list will bear this in mind. It is a great mistake to plant standards in the vicinity of towns, for it is only a waste of money and time. Dwarfs are the best whether on the Briar, Manetti, or their own roots. The latter I prefer. It will be seen from my list that I have included several comparatively new Roses, but they appear to succeed the best. Twenty-four Hybrid Perpetuals are enumerated, the first twelve being preferred, as they grow most luxuriantly, and all are arranged in the order of merit—John

Hopper, Duke of Edinburgh, Abel Carrière, Mrs. Jowitt, Général Jacqueminot, Jules Margottin, Sultan of Zanzibar, Madame Gabriel Luizet, Princess Louise Victoria, Anna Alexieff, Magna Charta, Etienne Dupuy, Comtesse de Chabillant, Countess of Oxford, Edouard Morren, John Stuart Mill, Centifolia rosea, La France, Boule de Nieve, Pierre Notting, Henri Pages, Mdle. Annie Wood, Mdle. Marie Rady, and Monsieur Boncenne. Amongst Teas Gloire de Dijon and Cheshunt Hybrid are the only two I can safely recommend; the latter is as hardy as any Hybrid Perpetual and does remarkably well. Bourbon Souvenir de la Malmaison stands well; Noisette Aimée Vibert and the common China Roses complete my list for towns.—W. BARDNEY.

COELOGYNE CRISTATA.

IN reply to "KIRBY'S" inquiry respecting the culture of *Coeologyne cristata* (page 89), I beg to say that I grow them under exactly the same conditions as your correspondent both as regards temperature, position, and compost, with one exception. Like him I grow them in a mixed house of Ferns and foliage plants, shading with whiting, &c., instead of tiffany. But after having made their growth at the latter end of August or beginning of September, I remove them to a house with the same temperature, but without the shading, to ripen the growth. I am also very careful when cutting the flower spike not to take it off too low, as I find the best pseudo-bulbs spring from the base of the flower stem. I supply them copiously with water, and sprinkle them two or three times a day during the time they are making their growth, giving them less after they are matured, but being grown continuously in a warm house I do not dry them off to the extent which some advocate.

I have enclosed a pseudo-bulb with flower spike attached. I have larger, but I have sent a medium-sized one; the plant from which I cut it is growing in a 9-inch pot. I cut the first spike from it about the 7th January, at which time it carried thirty-seven spikes with from three to seven blooms on each. I have also seven other plants in 5-inch pots, carrying collectively forty spikes. I find the lovely white and yellow blooms invaluable at this time of the year.—S. MORTIMER.

[Both the pseudo-bulb and flowers of the specimen sent were remarkably good.—ED.]

THE EFFECTS OF GAS ON PLANTS.

THAT some gases are greatly destructive to plant life is generally admitted if not particularly well understood. Everyone is aware how short-lived plants are in gas-lit chambers. It is not the coal gas itself, or unconsumed gas, that causes the injury, because that is never present to any great extent; but burning gas produces other compounds, which are not only fatal to plants but highly injurious to the health of human beings. There are but few people who have not felt its baneful effect, and plants are equally if not more sensitive. Traces of injury are sooner apparent on plants. They might thus be used to test the condition of the atmosphere failing better means, for assuredly any place where plant life is destroyed by gas must be in a corresponding degree unhealthy for man.

We are led to direct attention to this subject since making an inspection of the plants in the conservatory of the Royal Horticultural Society at South Kensington, which, it is greatly to be regretted, have sustained serious injury by gas arising from an exhibition by the Siemens Gaslight Company of a great number of extraordinary powerful gas lamps, called Siemens' Regenerator Gas Burners, this exhibition being a part of or held under the auspices of the Smoke Abatement Exhibition.

Apart from its serious aspect there are many lessons to be learnt. It is very curious and interesting to note the different effects the gas has on different plants, and how some appear to be almost unaffected. On some the foliage rapidly changes colour, fades and dies as in autumn; in others the leaves become, as it were, scorched, but are still persistent; whilst in some examples they fall off quite green and apparently fresh. Amongst the plants most injuriously affected we have noted the following. Conspicuous above all appears the species of *Encephalartos*, several large examples of which were in the conservatory. The leaves are nearly all destroyed, the hard thick leathery leaves scorched as if by fire. It is very remarkable that these Cycads should prove so extremely sensitive, they might be expected to be quite the reverse. It may be remembered that these plants were largely used for the decoration of the Royal Aquarium, and they were the first to suffer. Every plant died; and during this present season the Manager at Warwick House placed a fine Cycad near to the gas burners, where it was soon withered.

Eucalyptus globulus—several large trees of this reaching to the roof of the conservatory—had the leaves and young shoots scorched and withered. These were the first plants to betray injury. *Dammara australis*—a very fine pyramidal specimen some 30 feet high in a tub—the hard thick Holly-like leaves of this evergreen plant are all falling in a green and apparently fresh condition; there is no scorching here. A large plant 30 feet in height of *Ficus elastica* is similarly affected. *Acacias*, *Oranges*, *Myrtles*, *Euonymus*, *Eriobotrya japonica*, *Podocarpus*, and others have also suffered by losing their foliage, several examples being quite bare. Concerning *Aralia Sieboldi* a curious fact is noticeable. The younger leaves decay first, becoming yellow from the top downwards. Some freshly introduced plants were completely destroyed in a few days, others have stood almost uninjured. The large and beautiful specimens of *Araucaria excelsa* are somewhat injured, especially near to the tops, the leaves or small side shoots, which they most resemble, coming off in handfuls at the slightest touch quite fresh. Of Ferns, *Adiantums* proved especially susceptible, as was to be expected, a large *Cyathea dealbata* being much injured, the fronds scorched; likewise *Dicksonia antarctica*, the fronds of two fine plants being quite withered. On the contrary, *Asplenium nidus-avis* seems to thrive under these conditions.

Palms were slow to exhibit any traces of injury, but many are now apparent. Large specimens of *Chamærops Fortunei* and *Corypha australis*, which were a short time ago quite green and healthy, are now becoming yellow at the point of every leaf, and in some instances the leaves are much spotted as if scorched. The Date Palm seems to be more especially sensitive. The effects of the gas on some species of succulent plants have been very severe, many plants in the large and representative collection belonging to J. T. Peacock, Esq., exhibited in the gallery of the conservatory, being much injured. *Agave filifera* is especially noticeable, every plant appearing as if scalded with boiling water. *Beaucarnea stricta*, *Crassula arborescens*, *Aloe frutescens*, and the *Dasyliirions* are also conspicuous for injuries sustained. All are, unfortunately, more or less affected, and will take a long time to recover.

The one plant amongst all others that seems to be indifferent as to treatment is *Aspidistra lurida*. It enjoys high culture, but will live under the worst conditions—cares neither for neglect in watering nor for a superabundance of gas. In support of this we have only to look at those hanging baskets in the Royal Aquarium, which, if not removed quite lately, still retain the plants of *Aspidistra* that were placed there by Mr. Wills some seven or eight years ago. There is not another plant that has withstood that gas-charged atmosphere. It is a pity that the experiences gained at the Royal Aquarium were not present to prevent this disaster at South Kensington. The lesson is dearly bought. Let it be remembered that plant life is in danger in any place unduly heated by burning gas.

It is more difficult to give a list of plants that are not injured by the gas, &c., than of those that are. Those showing no traces of injury are *Aspidistra lurida*, *Asplenium nidus-avis*, single *Camellias*, *Phormium tenax*, and *Aucuba japonica*. The following are slightly affected—*Latania borbonica*, *Seaforthia elegans*, *Sabal umbraculifera*, and some specimens of *Corypha australis*, and *Chamærops Fortunei*. It may be noted that the quantity of gas consumed or registered amounted to 5800 feet per diem.

THE GLADIOLUS.

RELATIVE to the culture of this brilliant border flower, which "W. J. M." advocates, and the decay of the corms, which so many persons experience, the following note written by the celebrated Donald Beaton twenty years ago may, perhaps, be worth perusal. "My Gladioluses," says Mr. Beaton, "have been grown in cocoa-nut fibre refuse for the last seven years, and those I bloom of them could compete against those grown by Mr. Standish himself, or any other celebrity in the trade. For the last three winters some of them have not been lifted, nor do I intend to lift them for some years. If the ground is rich and light, not less than 3 feet deep, and is thoroughly drained at that depth, every Gladiolus now in the trade would go on improving for years in a mixture of the refuse if left in the ground from year to year and never disturbed. Taking up Gladioluses is exactly like budding Roses. It is the way required for the trade, and it is the best way where the soil is not suitable; but where the soil is just what they like, Gladioluses should not be lifted oftener than once in six or seven years. A far more tender race of this genus than we now possess have been left out in the beds for the last half of the last generation, and they prospered more, even up in the Highlands, than by any other method. The beds were covered with leaves against frost; there were no roots to be hurt by bad

drainage in winter, and the roots, like those of *Cyclamens*, were kept in a uniform degree of moisture and temperature during the period of rest. The long succession of unnatural treatment brought on the Potato disease. I should not imagine that twenty years' practice of a wrong principle had much effect yet on the *Gladioluses*; but let us continue to grow them on the lifting-of-the-potato principle, and their day is coming for the dry rot. Even now the over-drying of unripened bulbs is a serious cause of complaint. The one-half of English-grown *Gladioluses* are only three-parts ripe from the lateness of the present time of planting."

Can it be that the "twenty-years practice of a wrong principle,"

has had the effect which the veteran anticipated and dreaded, and which so many cultivators now deplore?—A VICTIM.

CYPRIPEDIUM BARBATUM WARNERI.

SEVERAL fine varieties of the handsome *Cypripedium barbatum* are now known, such as *nigrum*, *superbum*, *giganteum*, and *lati-sepalum*, which differ from the species and each other chiefly in the varying size and shades of the flowers. In all there is the distinctive purplish brown colour relieved with white; but the depth or brightness of the former and the greater or less proportion of



Fig. 25.—CYPRIPEDIUM BARBATUM WARNERI.

the latter furnish characters easily recognised. In the variety represented in the woodcut (fig. 25) we have another form with handsome flowers of good colour and beautifully variegated foliage; but it is chiefly remarkable for the period at which its flowers are produced, as in that respect it is quite distinct from all the other forms of the species. It is, in fact, a *C. barbatum* flowering in winter and early spring, and therefore is a welcome addition to the few *Cypripediums* flowering at that time. At the Victoria and Paradise Nurseries, Upper Holloway, plants have been in flower some time, and the variety shows the characters of its parent in the durability of the flowers both on the plant and when cut.

It was, we understand, first introduced and flowered by Mr. R. Warner of Broomfield, Chelmsford, after whom it is named.

EFFECTS OF SMOKE ON TREES.—A recent investigation by Herr Reuss, of the injury done to trees by the smoke of smelting works in the Upper Hartz regions, yields the following among other results. The smoke is injurious mainly by reason of its sulphuric acid. All trees are capable of absorbing a certain quantity of this through the leaves, whereby they are rendered unhealthy, and often killed. Their growth in the smoke is irregular and difficult. Leafy trees, especially the Oak, resist the smoke better than the Coniferae. No species

requiring humus or mineral rich soils prosper in those regions. The Oak seems really the only tree that can be successfully grown. Trees that have been injured by smoke are not exempt from injury by beetles. All smelting authorities should unite in effort to prevent this injury to vegetation. By instituting sulphuric acid manufactory, effecting condensation of the smelting vapours, the evil may be greatly reduced and brought to a minimum. Places cleared of vegetation by the smoke may be brought under cultivation again after removal of the injurious cause.—(*Journal of Forestry*.)

FLOWER GARDENING ON CLAY SOILS.

THE successful production of flowers in the open border requires more perseverance and patience when the natural soil of the garden is clay than when it is of a lighter nature. The more is done to improve the soil the more convinced we become that plants depend for their welfare upon atmospheric conditions as upon soil, and these conditions seem to be unfavourably influenced by a surface of clay. It stands to reason that if plants are kept constantly growing through summer and autumn by the moisture of any soil they are in a worse condition to resist the cold of winter than where they are allowed to complete their growth and rest earlier in the year; but, apart from this, even if a plant is in a pot, it seems far more susceptible of cold on clay than on chalk or gravel. The difficulty is greatest in the case of choice and delicate plants, and many things are quite hardy in the neighbourhood of Edinburgh which seldom survive a winter in this garden on the red clay of Cheshire.

If I had to choose a residence with a view to the capabilities it offered for outdoor gardening, this is one of the last places I should select; but as I live here I have studied how to counteract the disadvantages of soil, and as many who are fond of gardening are similarly situated I will tell them how far I have succeeded. In the first place all surface water must at once be carried off into the nearest watercourse by drainage. Agricultural pipes are of little use when the roots of trees can get into them, but the clay itself makes a very good channel if the drain is filled nearly to the surface with broken stone. By going round the garden after rain, and observing in what places water stands or the soil is very wet, it will be seen where drains are wanted, and they must be put in accordingly. Then we must consider the soil of the flower beds. The more this is lightened by sand, leaf soil, and other mixtures the greater the necessity for special drainage to each bed, or the water sinks into the light soil and cannot escape, making a stagnant basin or pond, in which even bog plants will not do well. The best plan is to dig each bed out to a depth of 3 or 4 feet, and to lay drains from the bottom, sloping the surface of the clay towards the outlet, and covering it with broken stone.

For long borders I find it best to have a deep narrow drain filled nearly to the surface with stone or other hard substance along each side of the border, giving it sufficient fall to carry off the water at once to the nearest main drain. The labour of all this is small compared with the advantage gained, but there may be some difficulty about material. Brick ends and similar rubbish are readily suggested; but in this part of Cheshire sandstone rock, locally called "roche," and pronounced, like the name of the fish, roach, is nowhere very distant. It is so easily worked that our forefathers seem to have thought it the readiest way of employing superfluous labour, and walls built of large stones, weighing from 1 to 2 ewt., squared and put loosely together, are often seen in places where we wonder what use they were intended for. Besides filling drains with broken pieces, there are two ways in which these stones may be turned to gardening purposes. Well-drained level beds filled with good soil are satisfactory enough, especially if lumps of stone reaching nearly to the surface are mixed in for the whole depth of the new soil; but in other ways we may obtain still better results.

I have lately spoken in this Journal of rockeries; but besides the rockery proper, for which soft sandstone is not the best material, these large stones laid on the surface at different angles in any part of the garden where there is a steep slope, and filled with soil between so as to stand out 2 or 3 inches, make a flower bed which, for the well-being of plants and for displaying their flowers to advantage, cannot easily be surpassed. I have just used 10 yards of old wall in converting a length of old moat 15 yards long and 15 feet wide, sloping at an angle of 30°, into 75 square yards of flower bed, and the entire work occupied three men and a horse and cart two days, my work being thrown into the bargain. Another plan which I find very successful on this cold damp soil is to make raised beds with these same blocks of sandstone. I place a row of stones round the area of the bed, about a foot apart or less, if I intend to have only one row of stones, and raise the soil from 1 to 2 feet, according to the size of the bed. I have such beds of many sizes, some against walls for growing choice

plants or for raising seedlings. They are excellent for Pinks and Carnations, for Hellebores and Hepaticas, and for everything which is especially particular about good drainage, and I am trying them this year for Gladioli, with which I have never yet been successful.

These are a few of the means I employ to fight against natural disadvantages. This work involves much cartage of materials, and I believe I have for several years added about three hundred cartloads annually to the soil of my garden, a work which will, perhaps, in future ages be set down to the credit of the worms.—C. W. DOD.

ESCALLONIAS.

THE beauty of Escallonias is not half known in our northern counties, and this is due in a large measure to these plants failing to stand the severity of our winters. This accounts, too, for their not being more largely planted, as cultivators have an impression that they are not hardy. To a certain extent they are not, and the same applies to many other shrubs which are planted largely in gardens. I have seen plants that have lived through winters when the temperature fell below zero. The portion above ground was killed, but the plants grew again from the base the following season. Those portions above ground are liable annually to be cut back, and solely on this account many have refrained from planting them. They can, however, be kept alive through all our ordinary winters if planted against a wall in a sheltered position and protection afforded during a severe winter. The roots should be well protected with litter, while the tops must be loosened from the wall, packing a little dry straw and a mat round them, and secure them to the wall. By this means I have seen plants protected do well and flourish abundantly afterwards. I have no doubt these plants would stand well in the southern parts of the country, where the winters, as a rule, are not so severe. Inland they do not appear so hardy as by the seacoast. In Wales they grow, bloom, and flourish luxuriantly. Those who may only have seen small plants or others growing against a wall can form only an inadequate idea of the effect Escallonias produce when grown as bushes and literally covered with flowers. This was the case with plants I saw some five years ago at Colwyn Bay, and close to the sea, which first impressed me with their real beauty. I should not like to speculate in recommending them to be grown bush fashion in the northern counties, but in the more genial parts of England they might be planted for that purpose, and prove ornamental and effective. Whether they succeed in smoky neighbourhoods I have had no opportunity of ascertaining, and I should be glad of any information on that point.

Escallonias are readily propagated by means of cuttings, which root freely any time during the season. Cuttings taken now from plants stored in frames for protection during winter would be very suitable, or the younger shoots produced during the summer also root freely. The cuttings should be about 2 inches long, and cut below a joint, removing one or two pairs of leaves as may be necessary. The tops or strong side shoots should be selected for the cuttings, and are best inserted in 8-inch pots, well drained and filled with sandy soil, with a good layer of silver sand on the surface. After the cuttings are inserted a good watering should be given, and the pots placed in the close frame in the Conifer house or under bellglasses. The soil must not be allowed to become dry, and the cuttings should occasionally be damped with a fine-rose watering can or the syringe. Escallonias root readily and quickly, and are soon ready for potting-off singly in 2 or 4-inch pots. They must be gradually hardened before they are transferred into pots singly. For a short time they should occupy a frame, and if favourable weather follows they can be placed outside and plunged. Whether the plants are transferred into larger pots depends much upon the time they are rooted. If early they can be placed in 5-inch pots if in the first-named size; but if in the latter, are often allowed to remain in them until they attain a saleable size. If not disposed of they are placed in 6-inch pots the following season. As a rule, in nurseries Escallonias are kept in pots, and can be transferred for planting at any season of the year with safety. They grow quickly and freely in sandy soil with a seventh of manure added, and require good supplies of water while growing in pots.

Escallonia sanguinea is very attractive with its small foliage and flowers against a wall, even more so in that position than *E. maerantha*, while the last-named is the better of the two to form a bush. The white-flowered varieties I have never seen in good condition.—W. BARDNEY.

HISTORIC TREES IN AMERICA.—There is a grove of nearly 1700 trees in California, no one of which measures less than 6 feet in

diameter. At Salem, New York, there is a White Oak, the branches of which spread over 112 feet. In Berks, Pennsylvania, there is a Chestnut tree which measures 40 feet at the base; and at Showhegan, Maine, there is a Russet Apple tree $4\frac{1}{2}$ feet in diameter, with branches covering a space 63 feet in diameter. Then there are the historic trees, *par excellence*, some of which have now disappeared, as the Charter Oak.—(*American Magazine of History*.)

GALANTHUS ELWESII.

Of all Snowdrops this is one of the most distinct and effective. It has been in bloom with us since the week before Christmas, and there are still unexpanded buds. The flowers are larger than those of *G. plicatus*, and are readily distinguished from all other species or forms by the dense green basal blotches of the three inner segments. It is named in compliment to Mr. Elwes, and was first found by M. Balansa in 1854, on the Gamauladagh Mountains to the north of the Gulf of Smyrna. It appears to



Fig. 26.—*Galanthus Elwesii*.

have been introduced to English gardens by Mr. Elwes, who collected it on the mountains near Smyrna in 1874. The plant is now tolerably abundant in all good gardens, where, with the still larger *G. Imperati*, it well deserves a place. *G. Elwesii* is rather variable in markings, and is well represented in the "*Botanical Magazine*," t. 6166.—D.

WHAT PLANTS USE.

(Continued from page 495 last Volume.)

SOILS.—Some soils are heavy and others are light; some are sterile and others fertile; some, like peat soils, are composed almost wholly of organic matter, and others are almost entirely deficient of organic matter. There are trap soils, chalk soils, clay soils, sandstone soils, limestone soils, and others far too numerous to mention. That all are not fertile alike we all know, but we believe few are aware of what constitutes the difference between

a fertile clay and an unfertile one; why some loams are good for nothing, and others good for nearly anything and everything.

In the few remarks on soils which follow we will endeavour to point out some peculiarities whereby soils resembling each other in appearance and different in quality may be recognised, and in this endeavour we will confine ourselves strictly to our own observations.

We begin with loam, for by that name gardeners designate a great variety of soils; indeed with gardeners every soil is loamy which is not clay, peat, or sand. A mile to the east of this there is a square mile or more, where two streams join, composed of what would be unanimously termed a brown medium loam. It has lain in pasture time out of mind, and the surface is full of fibre. Nine gardeners out of every ten would pronounce such to be first-class loam for ordinary purposes. Still it is worthless, or nearly so. It has a medium texture, but it is just because it is composed of extremely fine particles of sand. It is of a fine brown colour, but that is because it is dyed with iron. It is full of fibre, but that is because of its poverty, and because of its poverty the grass that grows in it is nearly useless for animals and the fibres of its roots for plants. Yet a casual observer would be easily deceived as to its nature, and more than one or two plant-growers, whose names are widely known, have been so.

To the south of this there is a large tract of peat land, bleak, bare, and hopelessly barren. All along the northern edge of this tract lie fertile tracts. The line runs zigzag, and where the peat runs in promontories among the loamy land are lands which are only broken up at long intervals. Between these intervals the land is under pasture. The turf grows close, thick, and is a mass of fibre. Some time ago a plant-grower, at one time rather famous, told us that the turf from off these places was the best he had ever had for large plants. Half peat, half loam, it suited every plant. We had a quantity of it stacked in orthodox fashion, with layers of fresh manure alternating with layers of turf, and after it was fairly decayed used it as loam generally is used, and lost reputation with great rapidity. Every plant in that loam failed to succeed, and not a few speedily became unhealthy. Yet it was recommended to us by one of "light and leading" as the best in a wide district; it was fair to look upon, but it proved worthless.

Along the northern edge of this peat soil, as we said, there is a tract of fairly fertile land. This is nearly a mile broad. Parallel with this, again, there is another tract two miles long and varying from one-fourth to three-fourths of a mile broad, which is, when deeply broken up, surprisingly fertile. This is too good soil to be allowed to lie long in pasture, hence it is never allowed to lie long enough to form that fibry loam which delights gardeners and amateurs; yet from this we now take all the loam we need, for we have learnt that when properly used it is very good for all loam-loving plants. Yet a casual observer would fail to see any great difference in any of these soils by merely examining a handful from the surface; and if he were to value each according to the fibre it contained he would assuredly choose the worst. Choosing soil for potting purposes, making Vine and other borders, is a cause of stumbling to not a few, and especially to young men or amateurs. The question naturally occurs here, How are worthless soils to be distinguished from good soils? If men bred to the business sometimes make mistakes, with years of experience to guide them, how are beginners to know? Our advice is in all cases to examine the subsoil. In the first case we have mentioned the subsoil is fine sand dyed brown with iron ochre; in the second it is a sandstone, and in the third the subsoil is composed entirely of whinstone (trap) debris. This layer of whinstone varies in thickness from 3 to 60 feet. How it came there we cannot tell, but we suspect that it is glacial debris for various reasons. It rests on the boulder clay, which never, however, comes to the surface or intermingles with it. The sands which compose the bulk of the other soils are almost pure quartz, a mineral which is almost pure silica. The trap soil is chiefly made up of decayed felspar and hornblende, which between them furnish potash, soda, lime, magnesia, iron, manganese, and silica. These are not the only minerals present in trap, but are the main ones. Others exist which furnish phosphorus and sulphur, &c., in quantities sufficient to make the soil fertile. This trap soil is full of undecayed but decaying pieces of the rock, which, being continually ground down by the elements and agricultural instruments, continually yield fresh supplies of food to plants. Not only so, but this soil contains iron only in very small quantities, whereas the other two contain it in injurious quantities.

Four or five miles to the north-east of this there is a large tract of very heavy but very fertile land. Seven miles to the east there is another tract of very heavy clay, but very different in its fertility from the former. The former is simply the siltings-up

of two or three rivers, which for ages, perhaps, have flowed on through distant tracts of fertile trap soil, and have borne in their water, more especially when in flood, very fine particles of mud from the upland lands. This mud has settled quietly in the estuary into which the rivers debouch until the mud banks so made have been reclaimed and cultivated. Even now much or most of the twenty or thirty square miles to which we allude is considerably below high-water level, and outside the defending walls are some more miles which are now considerably higher than what is reclaimed, and only waiting reclamation in order to add very considerably to the wealth of the country. A wealthy local gentleman, we are told, once tried to get an Act of Parliament to enable him to reclaim it, but as it lies adjacent to another landowner he failed. It is a pity that sentiment should stand in the way of improvements of this kind. The would-be improver owns the other tract of heavy land to which we referred, and at a great expense has rendered it productive and, for the time being, very fertile. All around him the farms are anything but fertile. Indeed, in these times of agricultural depression few of the farmers who cultivate it consider it worth cultivating, and much of it is being laid down, or rather allowed to go to waste. In the case of this land the subsoil is clay shale. The former heavy land owes its heaviness in great measure to the fineness of its particles, and not so much to the presence of clay (real clay) although a good percentage of it is composed of decayed felspar. The latter is by no means so fine; indeed it is "gritty," but being composed of shale it is wet, cold, impervious, and poor. Who in choosing heavy soil would take the latter if they could get the former? And yet we have known it to be done sometimes.

It does not follow from what we have said that the soils deposited from the same river or in the same district are equally good. Anyone who cares to explore the side of a river which flows through a hilly district will find that the higher they ascend the poorer will the soils deposited by the stream become. It is only the fine particles which float far: the sand is only carried far in flood time: the gravel, from which the waters have separated the soil, will be found higher up: and the quartz material, by its ability to stand tear and wear, will be found not far from home. It is only on a small scale that we can trace the soils deposited from water, and yet very large tracts of our best land have been carried by its agency. When it has been done recently it may be seen, but only the eyes of the expert geologist can detect the tracts deposited in past geological ages. We scarcely expect that a majority of your readers have the knowledge sufficient to enable them to distinguish between the new and the old red sandstone, between the London and the boulder clays, the Oxford, the Weald, or the Kimmeridge; and supposing they could, they would find it of more practical utility to study the botany of soils. Better than all, the crops which the land produces under ordinary cultivation will act as a good guide to the selection of soils when a choice is afforded.

The land which will not bear good Wheat will not, without very considerable aid, produce good Grapes, Peaches, or Melons. The difference between land that will bear good crops of Potatoes and crops of good Potatoes is often very considerable. Soils which will produce large crops of good Potatoes will almost always be found capable of producing fine crops of fruit. But if the crop only is large, and the quality generally inferior, such as gravelly lands often produce, it is not likely that fine crops will be produced unless care is taken to supply every needed want artificially; and how to do this we think is of greater importance than the ability to distinguish different geological formations. To the farmer the latter is of undoubted value, and in a lesser degree to the gardener; but to know whether a plant demands potash or soda, phosphorus or sulphur, and how best to afford them, is, we think, of far greater benefit to the gardener. Indeed, we are not sure whether we should not write that it should be considered indispensable. Probably it will be so considered in one generation more.—SINGLE-HANDED.

LOMBARDY POPLARS KILLED BY FROST.—The winter of 1880-81 has been very destructive to the Lombardy Poplars in the counties of Norfolk and Suffolk; probably more than half the trees are dead, and of the remainder many, although showing feeble signs of vitality, will evidently not long survive. Some curious phenomena present themselves with regard to the trees which have partially survived, and the apparent capriciousness with which many of them have been spared. For instance, some trees in very exposed situations are comparatively uninjured, whilst others, sheltered from the wind, are quite dead; one particular tree in a row may be still living, but all the others have perished; or again, in many of the trees which still show signs of vitality, it is on the south side only that they have produced leaves. The latter circumstance would seem to indicate that the north wind was the cause of the mischief; but the number of trees

which have perished in sheltered situations shows certainly that this was not the only cause.—(Land and Water.)



HARDY FRUIT GARDEN.

COMPLETE pruning, dressing, and nailing Apriote, Peach, and Neectarine trees, preparing protection to be applied when the flower buds begin expanding. Glass is the most effectual protection, glass copings being very useful, especially with serim canvas in front of the trees. Whatever material is employed should always be so adjusted as to be readily withdrawn when frost is not expected, or when not required to shade the trees from bright sunshine, which it is sometimes desirable to do if cold nights are followed by bright days. Rough straw or hay bands secured to poles fixed immediately under the coping and into the ground 18 to 24 inches from the base of the wall, the bands being at a distance of 9 to 12 inches from each other, keep the blossom dry, and at the same time admit plenty of air. Considerable protection is also afforded by Spruce branches or the spray of Beech with the leaves adhering, disposing them thinly so that the blossoms will not be too much shaded. A double thickness of old herring nets fixed a few inches in front of the trees is also an excellent mode of protection, allowing sufficient light for the trees without constantly removing the covering, as must be the case when heavier material is used.

Where the pruning of bush, pyramid, and espalier fruit trees has been deferred, it must now be completed as soon as possible, for the buds of the earlier kinds are swelling fast. The loose soil over the roots must be scraped off and a mulching given of three parts fresh loam and one of well-decayed manure; about 25 per cent. of charred refuse may be added with advantage. Pruning Gooseberries and Currants should likewise be completed, dressing the soil with manure, and pointing over the spaces between them without further delay. Thin the canes of Raspberries to about four of the strongest to each stool, securing them to the stakes or trellis.

Planting fruit trees should now be finished speedily. In making plantations of bush fruit it is better to keep them together, so that if necessary they can be covered with nets, which is not readily effected when they are planted round the borders. Vines upon walls out of doors should be pruned if necessary, cutting back the shoots to firm wood with plump buds, removing enfeebled rods, and training in well-ripened canes cut back to prominent buds. Avoid overcrowding, and before tying-in dress the Vines with an insecticide thickened with flowers of sulphur. Where mildew is troublesome mix quicklime and sulphur with tobacco water, and apply it with a brush. Mulch over the roots with rich material after removing the loose surface soil.

Beds and plantations of Strawberries which were mulched in autumn or early winter with half-decayed manure, may now have the same lightly pointed in after all weeds and decayed leaves have been removed. If no manure were applied a dressing of guano or some artificial manure may be given: we have found Amies' chemical and Clay's fertiliser very useful, pointed in lightly. A dressing at the rate of 4 ewt. per acre affords good returns.

FRUIT HOUSES.

Vines.—It is difficult and injurious to keep Grapes hanging on the Vines much after this, as the warmth necessary to keep the Grapes in good condition excites the Vines, causing the sap to rise, and the Grapes are liable to damp or crack, besides causing the pruning to be deferred until a season when it cannot be performed without danger of enfeebling the Vines. Grapes that have been well ripened will keep quite as well cut with a piece of wood attached and inserted in bottles of water in a moderately dry room with a temperature of about 45°. All late Vines should be pruned at once, dressing the cuts with a styptic or patent knotting, keeping the house as cool as possible so as to give the Vines some rest. Vines

in flower should have a mean temperature of 65° at night and in dull weather, advancing 10° to 15° from sun heat, the atmosphere being kept a little drier. Assist the setting by rapping the rods sharply in the afternoon of fine days, or dust the bunches with a large camel's-hair brush, employing the pollen of free-setting varieties for those which are shy-setting. Remove all unnecessary laterals, but endeavour to have every part of the trellis covered with as much foliage as can be fully exposed to light. Attend to thin all free-setting kinds as soon as the berries are the size of small peas, also thinning the bunches where necessary, leaving the most compact, and avoid the too common practice of overcropping.

Peaches.—The trees started early in January are in flower, and the early kinds have partly set the fruit, needing attention daily in aiding the distribution of the pollen, which should be effected either by shaking the trellis or placing the pollen on the stigmas with a camel's-hair brush or other means. A night temperature of 50° to 55° must be secured, advanced to 60° or 65° by day with sun heat and free ventilation. Damp the borders in the morning and afternoon. The trees in the house started about this time in former years have the blossoms expanding, and though it is considered advisable to syringe the trees in the morning and afternoon until the flowers expand, it is undesirable to continue it after the anthers are showing, hence damping the borders should be substituted for it, and have a little ventilation at the top of the house constantly. Attend to fertilising the blossoms when the pollen becomes ripe. Secure a day temperature of 55° by turning the heat on early, ventilating freely above that, allowing an advance of 5° to 10° from sun heat; the night temperature being kept at 50°, or on cold nights 5° less. See that there is no deficiency of moisture in the borders, and supply water as needed, slightly warmer than the air of the house. The weather all through January having been mild, the flower buds in the succession and late houses are swelling fast, and free ventilation is needed to retard them.

Melons.—In the cultivation of early Melons a good bottom heat is of first importance. Hot-water pipes, either in a chamber or surrounded and covered with about 9 inches of rubble, afford a regular and lasting heat, which can be readily modified, and is unquestionably the best for the earliest crops. Successful results, however, may be achieved by the aid of fermenting materials properly prepared. Stable litter with two-thirds Oak or Beech leaves are suitable, throwing them into a heap and thoroughly incorporating about a fortnight before it is intended to make the bed. In a few days it will be seen whether there is moisture in the material to produce fermentation; if not, let the whole be turned and watered. It will need turning twice at intervals of four days before using. The materials should be placed together evenly and firmly, and when the rank steam has escaped the soil may be put in, a layer of turves being placed grass side downwards over the surface of the bed. In the centre of each light raise a hillock with the top flattened about a foot across and the soil 10 inches in depth, and in houses a ridge may be formed lengthwise of the house 2 feet wide at the base, 1 foot at the top, and 10 or 12 inches in depth. The Melon delights in a sound and firm soil, good loam with about a fourth of well-decayed manure. In forming hotbeds for frames always have a dry site, and employ, if possible, a good layer of faggots for the foundation, which will not only prevent the cold and wet ground diminishing the heat, but facilitate the ingress of heat afterwards by means of linings. Take care to have the bed 18 inches larger than the frame every way, 5 feet in height at the back, and 4 feet in front. Allow the plants to become strong before placing them out, but do not permit them to become rootbound or to root into the soil from the bottom of the pots.

Cucumbers.—As the days lengthen a little more heat and moisture should be afforded, filling the evaporating troughs regularly in bright weather. Still be very careful in the admission of air. Encourage a free root-action by fresh compost. Pits and frames must now be prepared for Cucumbers intended to be grown in this way, making the beds as advised for Melons, but the soil need not be so heavy nor so firm. The plants must be kept near the glass so as to insure a sturdy growth, stopping those to be trained over the surface of the bed at the second rough leaf, whilst those to be trained to a trellis

should not be stopped but have the shoot secured to a stick, and have the laterals removed until sufficient stem is secured to reach from the bed to the bottom of the trellis.

PLANT HOUSES.

Caladiums can be started, and they succeed in either turfy loam or fibrous peat. Where required large a number of roots should be left in a pot; but where they are requested small in 6 or 7-inch pots, which are most useful, the bulbs must be divided. The small-leaved *C. argyrites* is one of the most beautiful for decorative purposes. Grow it in 6-inch pots near the glass and not in too high a temperature, so as to prepare it for the comparatively cooler and drier atmosphere of rooms. A few more Gloxinias and Achimenes should be started; the latter are fine basket plants, and stand in the conservatory for weeks in the summer, making a very effective display. Earlier-started Gloxinias will be growing freely and may be transferred to larger pots, but any already showing flower and wanted in comparatively small pots should be supplied with liquid manure. Seeds of Gloxinias may now be sown, also seeds of tuberous-rooted Begonias, the plants being grown on in a brisk moist heat near the glass for late summer-flowering.

Fuchsias dried off in autumn can now be cut well back and placed in a slight heat, syringing them occasionally. When they have made a little growth replot them, and keep them rather close and moist for a time, supplying liquid manure when the roots have taken to the fresh soil. These will flower earlier than plants struck in summer, and be very useful for cutting as well as for conservatory decoration.

Late Cinerarias in small pots not yet showing flowers should be transferred to pots a size larger, these will be useful after the earlier plants are over; similar remarks applying to Calceolarias, neither of which are benefited by potting after the flower stems appear. Primulas and Cinerarias producing flowers will be much improved by supplies of liquid manure.



EKES AND NADIRS.

As you will perceive, I am quite a beginner in bee-keeping; indeed, it is doubtful if I should have begun at all had I not entered on the charge of a garden where I find bees are about as much valued as flowers. Still, I do not think the owner understands much about them, and, fortunately for me, my predecessor was "no apiarian." I am desirous to do the best I can with the bees, and I intend doing so. But I really know little about them, and nothing about some of the appliances that I suppose I shall have to use; hence I wish to know what ekes and nadirs are, and their uses. Clever bee-keepers will smile, no doubt, at my ignorance, but I must ask them to bear with me on the ground that they, I presume, were ignorant once. I have been reading some back numbers, but some of the articles are above me. I wish someone would write something about bees for beginners, for I cannot suppose I am the only one on the threshold of the subject and wanting plain guidance.—J. B. S., *Warwickshire*.

[We are not aware that we can answer our correspondent more plainly than by citing the following from Mr. Pettigrew's "Handy Book on Bees"—

"Can bees be prevented from swarming? Yes, by the use of ekes; and what are these? Additions or enlargements from below—that is to say, eked or lengthened. Hives are eked by riddle rims, or hoops made of four or five rolls of straw of the same description as those in a straw hive, the same width as the hives raised by them. These ekes are fastened to the hives by nails or staples going into both, and the junctions covered with any kind of cement or paste.

"But eking hives does not always prevent their bees from swarming? Not always, but in ninety-nine cases out of a hundred it does. In some hot seasons, and on rare occasions, bees have been known to square the ends of the combs before their hives were quite full, and swarm. This so seldom happens that it may be considered exceptional, and out of the usual run of events. When our hives are timely eked we have never the shadow of a fear that they will send off swarms. When ekes are used cross sticks must be put into them at the highest parts, so that the combs may be fastened.

"Nadirs are the opposite of supers. Nadirs go beneath bee hives,

and supers above them. If a hive which we wish to keep for stock becomes heavy in July we place a nadir beneath it—that is to say, we lift it off its board, place a hive with cross sticks and a large crown hole on the board, then place the full hive on the empty one, pin the two together, and cement the junction. The bees are soon found hanging in a large cluster like a swarm through the crown hole of the nadir. New combs are speedily built from the upper hive through the crown hole down to the board, and in process of time the nadir is filled with combs and brood, almost all the honey going to the upper storey. At the end of the season the top one is taken off for honey, and its bees driven into the bottom hive, which is kept for stock.

"Nadirs are most useful for early swarms that become heavy before the end of the season. By placing nadirs beneath them both honey and stock hives may be obtained.

"One year our earliest swarm was taken off about the 10th of May. By the end of four weeks it was full, and nearly ready for swarming. Instead of taking off a virgin swarm we placed it on a nadir. At the end of the season we found that it weighed 70 lbs. All the bees were driven below, and the top one taken. It weighed 50 lbs., and the nadir 20 lbs. We thus got nearly 30 lbs. of honey, and a stock hive from a swarm of May. A few pounds of refuse honey were given to the nadir, which was a strong hive in the spring following.

"We consider nadirs inferior to ekes when weight of honey is the only object sought. We use and recommend them when both honey and stocks are sought from swarms of the current year."]

TRADE CATALOGUES RECEIVED.

Sutton & Sons, Reading, Berks.—*Farmers' Year-Book and Graziers' Manual.*

W. Clibran & Son, Altrincham, Cheshire.—*Catalogues of New and Choice Plants, and Flower and Vegetable Seeds.*

Briant, Poitiers, Vienne, France.—*List of New Plants.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Inquiry (H. C.).—We are very pleased to have your letter; we receive many of the same nature, and they are much appreciated. Willing as we are to impart information to our correspondents, the question you ask cannot be answered for the best of all reasons—that it would involve a breach of confidence, and this, of course, you cannot desire.

Manure (A Young Gardener).—You cannot have a better form of manure than that you describe either with or without the additions you name. But it must be used with great care to Vines, Melons, Cucumbers, and plants in pots. For Ferns it will be too strong. Before applying liquid manure to any plants you must first determine whether they need more food than the soil affords. If they do not, then the applications would be injurious. The same remark applies to Vines and other fruits. For vegetable crops of all kinds sewage is of great value. Read our "Manures for the Many," post free 4d.

Hoya Paxtoni (W. Edwards).—A mixture of light turfy loam, peat, sand, and small pieces of charcoal will form a suitable compost for this pretty little plant. A small proportion of loam is only required, and the pots must be carefully drained. Avoid overpotting, and place the plant in a light warm position in the stove, assisting the growth occasionally by applications of very weak liquid manure. When flowering is over diminish the supply of water, as very little is then needed, though the soil must not be allowed to become so excessively dry that the leaves shrivel.

Snails in Fernery (Idem).—You do not say a word on the position of the plants, whether they are in pots or planted out. If they are in pots and you cannot otherwise prevent the snails eating their fronds you might invert pots in saucers of water, and on the inverted pots stand the plants. A question of this kind cannot be answered satisfactorily without much fuller particulars than you have supplied relative to the house and arrangement of the plants.

Sowing Japanese Seeds (S. S.).—The seeds of both the plants you name may be treated in precisely the same manner, but probably some difficulty will be experienced unless the seeds were well matured and forwarded quickly to you. Prepare some pans or shallow pots by well draining them with potsherds about two-thirds of their depth, then fill up with a light fine compost containing a large proportion of sand. Sow the seeds thinly, and cover with a little of the compost, pressing the surface even and moderately firm. Plunge the pots or pans in a mild but constant bottom heat, placing a piece of glass over each, and supply water very carefully until germination has commenced. If you are successful in raising young plants they should be potted singly in a compost of turf, peat, leaf soil, and sand, and when the growth is well advanced transfer them to a cool house.

Exhibiting Peas (Two Peas).—We presume the prizes to which you refer are to be competed for by cottagers, and among other things that the committee desire to show the relative merits and productiveness of the different varieties of tall and dwarf Peas. If this is the object, the condition of not only exhibiting dishes of Peas but also samples of the plants in bearing is a good one, indeed indispensable. We have no remark to make on the schedule, except that it would in our opinion have been more clear had the plants and cut flowers been arranged under separate heads.

Rating Orchard House (M. A.).—The reply we gave some time ago to another correspondent is applicable to your case—namely, parsonage houses are not exempt from being rated, therefore whatever the incumbent does to increase its value must render it liable to an increase of rating. We say nothing in defence of him or them who took advantage of so small an addition as an orchard house.

Oleander Unhealthy (Mrs. Davis).—If the plant is large and the pot small—that is, crowded with roots, further support is requisite. A good portion of the surface soil might be removed with a pointed stick, digging it out also from the sides of the pot, removing as much as possible, then water the roots thoroughly if they are dry, and afterwards add a dressing of loam and decayed manure, two-thirds of the former and one-third of the latter. Fresh roots may then be expected to form, and the food they will obtain will invigorate the plant. If needful and convenient it may be shifted into a larger pot, and any tall branches be shortened. Syringe the plant daily in fine weather, and place it in the lightest position at command.

Watering Liliums (Idem).—If the pots containing Lilium bulbs are plunged or buried in damp ashes or other suitable material, the soil will be kept moist without water being applied, but if the pots are not plunged water must be given occasionally to maintain the soil in a moderately moist state. Careful judgment is requisite in this work, and it is, as a rule, safer for amateurs to plunge the pots.

Orchard House Notes (J. E.).—The instructions to which you refer are scattered over our pages in calendarial form. You cannot do better than study "Orchard Houses and their Management," by the late Mr. Pearson, published at this office, 1s. 7d. post free, and Mr. Rivers' work on the orchard house published by Loughmans. These works you will find of great service, and we are able and willing to supply you with any further information that you may need if you will state your requirements.

Vines and Roses (A. B.).—The Vine to which you allude is not likely to be of any use, and we should not endeavour to renovate it. If you wish to have Vines you had better obtain as many as you require in pots and plant them in good soil at the front of the house, either inside or outside as may be most convenient, training the growths up the roof. You might try the Roses you have, but they are not likely to be of much value. We have seen very fine Roses under glass near London; the varieties you have, with Gloire de Dijon and Cheshunt Hybrid, being suitable for such a house as yours, and planted as we have recommended for Vines they would with good treatment succeed at least fairly well. When you decide whether you will have Vines or Roses, or both, we shall be glad to afford you further information if you need it, and will state what you require. We can answer you more usefully, however, if you name the district, the explanation of "rather smoky" not being sufficiently definite.

Bird's-nest Fungus (J. F.).—The fungus you sent is popularly known under the above name, and is frequently seen on the surface of soil in pots, especially if the drainage is not very good, or the soil wet and stagnant. It is known to botanists as *Cyathus vernicosus*, the generic name referring to the cup-like form it assumes. Another species is also found occasionally, named *C. striatus*; it chiefly differs from the one you have in the grooved appearance of the inner portion of the cup. They are structurally allied to the common Mushrooms and Puff-balls, though appearing so distinct externally.

Pruning Roses (G. H.).—Have you not kept the frame too close? Be this as it may, however, we should prune the plants at once, removing all weak growths and shortening the others—that is, just cutting off the unripe portion, including the young shoots referred to. The portions left, if of good length, might be trained round and secured to stakes. The back buds would then break, and, the wood being sound and healthy, produce flowers. In consequence of your inquiry having been incorporated with a request for naming plants it was overlooked last week when the specimens were attended to.

Loddington Apple (S. J. Westlake).—This is a very fine Apple, totally different from Lord Suffield, with which it cannot properly be compared. It is very suitable for planting in a garden, as it does not make a large orchard tree. In Kent several grafts, from fifty to a hundred, are often inserted in the shortened branches of a healthy tree, and thus a head is formed capable of bearing some bushels of handsome Loddingtons years before they would be produced by a young tree. The fruit is large, smooth, and heavy, being in use during September, October, and November. As you "cannot find it in any nurserymen's lists," we presume you do not possess the catalogue of Mr. Bnyard of Maidstone, in which it is described.

Carnations from Seed (J. Boulter).—The following extract from an article that appeared in our columns last year will answer your inquiry—"The seed may be sown either in the spring in a little heat or late in summer, in this case no artificial heat being required. Spring-raised plants are apt to become too large before winter, yet few, if any of them flower; therefore summer sowing is preferable, as sturdy plants are produced that will pass the winter with little or no protective aid, and will flower beautifully the following summer. May is perhaps the best month for sowing. It is well to sow in boxes, nearly filling them with a mixture of sandy loam and leaf soil, watering it copiously, sprinkling the seed thinly, and covering with squares of glass. The boxes should either be placed in a shaded position or covered from the rays of the sun, it being essential that the soil be kept constantly and regularly moist. Shortly the seedlings will appear, when air and light must be admitted; and in due time the young plants must be transplanted in generous soil, either in other boxes that are larger and deeper, or under handlights, and a stock of healthy plants and eventually a wealth of handsome fragrant flowers will reward the cultivator for his pains." You will find more in reference to the subject in our issues of August 4th and 11th, 1881. If you do not possess these numbers and would like to have them the publisher will post them to you in return for 7d. sent in stamps, and a request that he send you Nos. 58 and 59, vol. iii., new series.

Building and Furnishing Wall (San Juan).—A wall 8 feet or 8½ feet high will probably answer your purpose, and if it is 9 inches thick with an 18 inch base no buttresses will be needed provided good mortar is used and the work is well done. If you have vol. xiv., new series, of the Journal, you will find on pages 50, 51, valuable information on walls and copings. If you do not possess the volume, the number (365) is, we think, in print, and can be had from the

publisher for 3½d. As you require fruit for table, not for sale, the following would probably answer your purpose and succeed on a north aspect:—Pears—Jargonelle, Williams' Bon Chrétien, Beurré Hardy, and Marie Louise d'Uccle. Plums—Rivers' Royal Prolific, Czar, Belgian Purple, Victoria, Pond's Seedling, Oullins Golden Gage, Magnum Bonum, Purple Gage, July Green Gage. Cherries—May Duke, Late Duke, Belle d'Orleans, Governor Wood, Black Eagle, and Elton, the remainder Morellos. The Pear trees should be 18 feet apart, and the other trees about 15 feet—that is, if you have them fan or espalier shaped; if you prefer diagonal cordons, which will furnish your wall quicker, maiden trees may be planted 18 inches apart. Your walk-and-border arrangement will do, but you may easily err by carrying out your proposed system of trenching your garden. We will refer more fully to this question next week.

Heating a Vinery (F. C.).—We do not anticipate that you will have great success in growing Pines and Vines in the same house. The most likely means of doing so would be either to purchase fruiting Vines in pots or to plant Vines in an outside border, and have the front of the house so arranged that you could draw out the rods after pruning, wrap them with haybands, and winter them along the front of the house outside. In your rough sketch you have shown the boiler and furnace inside the house. This is a bad arrangement, and unless great care is exercised will lead to trouble. The flue may be taken under the bed as you propose, provided first it is well made, and secondly that it rises regularly from the fire and without any sharp angles. If there are any dips or sudden turns it will not be safe. For providing the necessary heat for Pines you will need two rows of 4-inch pipes along the front of the bed, and one pipe, the return, next the path back to the boiler. We have not had experience of the boiler you name. If you burn coal a small saddle boiler would answer your purpose; if coke, either an upright tubular or conical boiler would answer equally well. The form of boiler is, however, of little importance provided the outlet for the water is at the highest part and the return at the lowest, and the pipes are arranged so as to insure a free and smooth circulation; when this is the case there is little fear of incrustation, and none if soft water is used in the apparatus.

Various (Idem).—In all probability your Clematis will not need repotting if you carefully remove 2 or 3 inches of the surface soil, and add fresh turfy loam with a third of decayed manure added and a handful of bonemeal. If there are several bold buds below the top growth you may shorten the stems below that growth, and you may then have a greater number of shoots and flowers. Top-dress your Auriculas the same as advised for the Clematis, and keep the plants in a frame or very cool house. Your Pelargoniums, we presume, are Zonals; if so they may be repotted if the present pots are small and full of roots. The tops of any plants may be removed, whether they are showing flower or not, if you desire bushy plants, and the unhealthy flower buds removed. If you refer to Show Pelargoniums the shoots not showing flower trusses must not be stopped. Carnations may be repotted when fresh growth commences, provided the pots they are now in are well occupied with roots. The soil advised for the Clematis will be suitable for Carnations and Pelargoniums, potting firmly in clean well-drained pots. Do not repot the Primulas, but remove all decayed leaves and flowers. You cannot employ a safer fertiliser than bonemeal. About a teaspoonful sprinkled on the surface of the soil once a week and watered in will be of much assistance to the plants, which we are glad to learn have proved so satisfactory.

Bedding Arrangements (Inquirer).—You are quite right in thinking a ribbon border would look well. Among your plants there are plenty of old favourites of proved excellence for such a purpose—*Cerastium tomentosum* for a front row, blue *Lobelia* next, followed by *Pelargonium Crystal Palace Gem* with the flowers picked off, *Iresine Herbstii*, and *Cineraria maritima* for a back row. This order of arrangement gives grey, blue, yellow, crimson, and grey in five broad lines along the 6 feet border, which will be much more effective than more numerous colours in single rows—affording, too, sufficient space for each stripe of the ribbon to stand out clearly and be kept from encroachment upon the others. Straight lines need not always be formed. Serpentine lines with semicircular clumps at front and back of the border afford pleasing variety, and are certainly less formal. The front clumps of *carnive Alteranthera*, and the back of *Iresine Lindenii*, would harmonise admirably with the other colours. Such a border admits of an infinite variety of designs—spirals, raised circular clumps, onwards to the most intricate geometrical figures of the popular carpet patterns; but we counsel you first to try what you can do with some simple plan, and gradually feel your way to others with which growing experience and practice will enable you to cope. Nothing could be better for the bed visible from the windows at the extremity of the garden than some such tall plants as *Wigandias*, *Cannas*, or *Solanums*; but do not introduce too much variety, or it will not prove effective. Let the carpet consist solely of *Salvia argentea* with a rather broad fringe of *Iresine* and a bold mass of *Canna* springing out of the carpet, or else the mixture of other tall plants if they are particularly desired. For the 10 feet circular bed a series of rings around a central clump would tell well. They might consist of 1, *Mesembryanthemum cordifolium variegatum*; 2, *Alternanthera amena*; 3, *Golden Feather Pyrethrum*; 4, dark *Heliotrope*; 5, a central clump of pink *Geranium*. Or, 1, *Echeveria secunda glauca*; 2, blue *Viola*; 3, deep crimson *Verbena*; and 4, a bold mass of yellow *Viola*. Four broad rings with a tolerably bold centre afford quite enough variety for such a bed, and we have had them very beautiful with less. A pair which were much admired had an outer ring of *Iresine Herbstii* kept pegged and pinched, with the soft grey *Gnaphalium lanatum* next it; then both colours were repeated with the same plants around a bold clump of *Farugium grande*, which gave crimson, grey, crimson, grey, and a mixture of deep green and yellow. Do not, however, overlook the great beauty of such beds when filled with mixed *Verbenas* with an outer ring or two of some soft neutral tint.

Names of Fruits.—We have many times notified that only six varieties of fruits can be named at once; still large packages reach us, the contents of which cannot be examined. Some fruits are not named because the sender's name does not accompany them, and we cannot always determine to whom the respective parcels belong, even by the aid of letters received by post. Pears, we have previously intimated, ought to be ripe or approaching ripeness when sent, or a number of them cannot be identified. All packages must be carriage paid; unpaid parcels are sent every week that are not taken in. The fee for naming fruit to non-subscribers is 5s. It is important that these conditions be attended to for preventing disappointment. (E. C. M.).—1, New Bess Pool; 2, Golden Nonpareil; 3, not known; 4, Winter Hawthornden; 5, Dunelow's Seedling.

Names of Plants (T. F.).—The specimens were so withered as to be scarcely recognisable; 1, *Aloe dichotoma*; 2, resembles *Veronica Andersoni variegata*; 3, *Adiantum macrophyllum variegatum*; 4, *Pteris serrulata cristata*. (X., Northampton).—1, *Sparmannia africana*; 2, *Acacia platyptera*; 3, *Acacia dealbata*; 4, *Cypripedium insignis*; 5, *Cypripedium insignis Maulei*; 6, *Dendrobium aurum*; 7, *Epidendrum evectum*. (R. W., Lancashire).—1, *Scolopendrium vulgare*; 2, *Adiantum cuneatum*; 3, *Asplenium cicutarium*.

COVENT GARDEN MARKET.—FEBRUARY 8.

TRADE slightly improved, with good demand for well-kept Grapes and best Apples.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 6 0	Lemons.....	½ case 12	0 to 1 6
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	½ 100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
„ Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	„ dessert.....	dozen	1 0 4 0
Filberts.....	½ lb.	0 0 0 0	Pine Apples	½ lb.	1 6 2 0
Cobs.....	½ 100 lb.	75 0 0	Strawberries	per lb.	0 0 0 0
Gooseberries	½ sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	½ lb.	3 0 8 6			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	½ 100	1 0 0 0	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	„ pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	2 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 6
Carrots.....	bunch	0 4 0 6	„ Kidney.....	bushel	3 0 3 0
Capicums.....	½ 100	1 6 2 0	Radishes.....	doz. bunches	1 0 0 6
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 0
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzoneria.....	bundle	1 6 0 0
Cucumbers.....	each	0 6 0 8	Seakale.....	basket	1 0 1 6
Endive.....	dozen	1 0 2 0	Shallots.....	½ lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 6
Garlic.....	½ lb.	0 6 0 0	Tomatoes.....	½ lb.	0 8 1 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

CULTIVATION AND MANAGEMENT OF HOPS.

(Continued from page 103.)

THE best method of preparing the ground in readiness to receive the plants must now be considered. The top soil must be thoroughly broken down to the subsoil, the treatment of which we have previously spoken. Whether it should be reduced to a very fine and pulverised state on the surface or not must depend upon the nature of the soil to a great extent, for some soils, such as adhesive clays and marls, if made very fine are liable to become consolidated after heavy rains. It is advisable, therefore, that such land may be left rather rough than otherwise; but if the soils are free, like the sands and gravels, the finer they can be made on the surface the better it will be for the reception of the plants, and the more readily the manure applied will act upon the young Hops.

The Hops for planting must to a certain extent be chosen according to the soil and climate. In the Mid-Kent and East Farnham districts only the best sorts are now as a rule being planted, such as Goldings, and Golding Grapes, and Whitebine Grapes. In the Weald of Kent, in Sussex, Worcester, and Hereford, Grapes, Jones's and Mathon's are usually planted. Colegate's are not now esteemed as formerly, for though they are heavy croppers and not so liable to blight or mould as the choicer varieties, they are coarse and have a rank smell, resembling somewhat that of new inferior sorts imported from America. Experience should here guide the planter, because upon land and situations where blight has prevailed to a greater extent than usual on the average of seasons it may be advisable to plant the Colegate's. In parts of Kent and Sussex they have been known to produce as much as from 20 to 30 cwt. per acre, and even in some years when the better sorts have suffered greatly from mould and blight the Colegate's have realised most money per acre. In spite of this, however, they are generally receding in public estimation, and have not lately been planted to any

great extent. In selecting plants for setting it is the general practice to obtain sets not only for original planting, but also for filling vacancies which may occur, from a distance, from some planter who has a good growth and a reputation for being careful in selecting and managing his sets. A change of sets is considered as desirable as a change of seed in the case of cereal crops like Wheat, Barley, and Oats.

There have been several new and improved varieties of Hops introduced within the past few years, raised from seed, and also from cuttings; in the former instance by mere accident or chance, in the latter case by a careful process of methodical selection, which is that usually guiding a person who systematically endeavours to modify or alter a variety according to some predetermined standard. But the usual principle is as Dr. Carpenter, who is a great authority in such matters, says in his "Principles of Physiology," page 985—"That propagation by seeds will only produce the species, the race not being continued with any certainty." The tendency is to revert to the original type. Seeds taken from the same Hop plant will, it is well known, produce different varieties, with a tendency to degenerate to the wild hedge Hop. This inherent tendency to reversion is augmented by the uncertainties of fertilisation peculiar to dioecious plants, and the prepotency of the pollen of the original type over that of all others. Few planters, however, allow male Hop plants in their grounds, trusting that the pollen, for mere purposes of fructification, will come from somewhere; still it is clear that artificial fertilisation must be resorted to systematically if it is wished to obtain true and satisfactory sorts from seed. Some very valuable sorts have been obtained by cuttings taken from solitary plants, which have been observed to differ from their congeners in certain characteristics. These specialities are further continued by a careful methodical selection of plants in which the desired qualities are most prominently displayed.

A very good sort of early Golding has been obtained in Kent, which is not only ready for picking a fortnight or three weeks before other Hops but is also of fine quality, much liked by the brewers. It is a very great thing to obtain such a variety of Hop of first-rate Golding character which arrives at maturity early, in order that the English grower may be able to supply the market before foreign Hops make their appearance, and to ensure good colour before the winds, the hot sun, and the heavy night fogs of late autumn have discoloured the delicate light golden hue so much sought for by the pale ale brewers. To obtain this much-desired colour it has been the common practice to pick Hops too soon, which tends to injure the stock of the plant, especially in the case of the Golding Hop—more delicate by nature than other kinds—to lessen its productiveness and to cause its premature decay. These combined causes are inducing growers to reorganise their plantations upon a new system by grubbing up the old grounds, many of which are practically useless from old age, the exhaustion of the productive elements of the soil, and unnaturally early picking; also by introducing a well-arranged succession of earlier sorts to follow each other in regular rotation. This is especially the case by the growers of Hops in the Hereford Hop districts, who are generally improving their plantations by growing early sorts of better quality.

The general mode of planting is a great improvement in every respect upon that of former times, for the custom of cramming as many plants as possible into an acre is discontinued. It is now thought desirable that there should be at least 6 feet 6 inches between each hill, which would give about 1030 hills to the acre if planted on the square, and about 1200 if planted triangularly. A thousand hills are quite enough for an acre, for quite as large crops are grown with such a plant as from one of 1200 or 1400 hills. It is obvious in the adoption of the system of the lesser number of hills that there is at once a great saving of labour and of expense for poles, and, what is of more importance still, the sun and air can permeate more freely through the alleys. Two good sets which have been one year in a nursery are usually put to form a hill; even one very good set occasionally suffices, and it has been observed that the fewer the sets the better the stock or centre hereafter, and not so liable to decay in part, especially as regards Goldings. Very great care and pains are now taken with the sets to keep varieties distinct, to select the truest and strongest, to have their nursery well manured and cultivated. It is considered wrong to propagate plants from the same stocks perpetually. Great delicacy of constitution and diminished fertility are known results of this practice.

The general mode of setting out and planting is extremely important for various reasons, whether the planter has prepared his land by ploughing or digging and has determined upon the sort he intends to plant. He should also make up his mind as to distance between the hills. This is most accurately done at first

with a chain. The better plan is to set out with two land-measuring chains and mark out nine or ten hills, putting down sticks, which may be termed station sticks, all over the ground at that distance; and then with a line marked with feathers or something equally conspicuous, at the distance the hills are intended to stand, and of a length equal to two stations, eighteen or twenty hills as the case may be. Proceed to set out the hills all over the field, keeping the line sufficiently tight to reach exactly the length of two stations, putting down a stick to every mark on the line, setting it out in rows of two stations distance first, and then stretch the line across between the sticks in the rows, putting down a stick in every mark as before, which will finish as proceeded with. This method will set them out correctly if care be taken with the chains, for as the chains will not err neither can the line err when made to reach the station sticks set out with the chains. Small sticks or reed cut about 1½ foot long are required. A man with an assistant and two boys or women will set out 3 acres per day. We have been rather particular stating the details of setting out, because it is important to have the hills at the distance intended to facilitate intercultural, &c.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This has now been resumed since the usual delay consequent upon the winter months, and it is gratifying to know that the horse labour on the home farm is in a forward state wherever they have been judiciously employed. The weather having been moderately dry has enabled manure to be drawn out upon land intended for Potatoes and Mangolds. We prefer using artificial manures for Potatoes, and after a long experience find that it not only saves time to use guano, but also it is more favourable to the produce. With regard to Mangolds, if dung can be laid out early enough so as not to delay the seedtime, we can recommend it; but at all events drilling artificial manures should be done at seedtime in addition to the dung. By all possible means let the sowing now of all crops in succession be attended to immediately the land is in a condition for working, as it may become too wet or too dry. The old Scotch saying should be kept in memory, "Time lost is ne'er to be found." When the weather is favourable parties having the use of steam power on the farm, or those who have not should hire it in order that the seedtime may proceed with the tillage and preparation for root crops. It is bad policy, and a total disregard of commercial principles, that one kind of farm work should be allowed to interfere with, or delay any other which is dependant upon favourable weather. Acting upon this system the steam power ought never to delay horse labour, nor *vice versa*. If the weather is fine not a day's delay should be permitted, and if the power on the farm for tillage is not equal to the requirements, agriculture must be a failure more or less. We have known seasons when the month of March has been dry, that all the work not done in that month could not be done in April, the seedtime being lost from a heavy and continuous rainfall during the latter month. Nothing can show more forcibly than this the advantage of the supplement power of steam in farming practice.

The weather has on the whole permitted the threshing of corn and the delivery of it lately, and this must be considered work that should be cleared up previous to the commencement of the busy season of ploughing and sowing Oats, Barley, &c., but all the pulse crops such as Beans, Peas, and Vetches should now be completed. In order that the work may be done safely as regards the weather, the land should be ploughed, pressed, and drilled simultaneously, so that no land that is ploughed should be left unsown, as we never can calculate upon the weather in our climate; it should therefore never be trusted, but the work must be finished daily. On some of the dry soils Barley may now be sown if the land is clean, for we advise sowing this grain early in preference to Oats, especially of the early white varieties, such as the Canadian or Swiss, like the Potato or Poland Oat. These when sown too early frequently get a check in their growth which seriously diminishes the produce both of straw and grain; in fact the yield is quite in proportion to the vigour of the straw. The Black Tartarian Oats, however, may be sown early if the land is in good condition, as they are more hardy, and will recover from a check; but in all cases where these are grown for home consumption we prefer to mix Barley with them. We must here remark that upon land in general Barley if sown after roots fed with cake is frequently too gross in the straw and becomes laid and lodged, this is sure to reduce the grain to a thin sample. This, however, should be counteracted by drilling half a bushel less seed per acre at 10 or 12 inches apart between the lines, which will oftentimes result in producing a malting sample.

Hand Labour.—The home farmer should now prepare the seed beds for different kinds of seeds, such as the Champion Cattle Cabbage, Drumhead Savoy, large sort, also the best sorts of Cabbage, such as the Imperial, Enfield Market, &c.; the large Mammoth Cauliflower, and early and late Broccoli. We noticed large Cauliflowers in November and December last which measured 15 inches across the head, being in first-rate condition and not the least show of seed stems; they weighed 10 lbs. and upwards, and sold as high as 11d. each, grown in the open field. Vegetable crops are likely to pay the home farmer this year, for we find that if the treaty with France is not

renewed it will greatly interfere with the supply of vegetables which are largely imported thence every year. The larger portion is usually sent over by back carriage at a small charge; if, however, the treaty is not renewed, whole freights will have to be paid, which it is thought will seriously interrupt importations. The growth of Broccoli as a farm produce, particularly of the early varieties, which are surer, as they do not suffer from frost like the late varieties, and are very profitable. We have often supplied two towns during the season with good heads, and used the stumps daily cut and mixed with cake for feeding cattle, either dairy cows or fattening bullocks. These stumps often weigh from 12 to 14 tons per acre, or equal to two-thirds of a crop of Swedish Turnips, and they will feed cattle with as much advantage, for we have taken many prizes with bullocks fed in this manner. Hand-planting Cabbages will be now going on. Preparations must also be made for draining by the cartage of pipes, for the first dry weather which will show the wet spots in the fields is the time for marking out the work, and light sticks set up to direct when change of weather succeeds. Another point is, that stones picked in the fields should be laid near the pipes, which will secure the proper operation of the work, especially upon flat clay soils, for a long number of years. If any plantations of Larch or other Firs, or Alder and withy plants in low swampy places are to be done, they should be made now, the sooner the better.

Men will be required in connection with steam threshing to some extent; trenching in the meadows will also be going on, and likewise attention will be required to regulate the water in its application on the irrigated meadows. This is still the busy time with the wood-cutters and the hoop-makers; and if any Ash, Elm, or Beech timber is to be cut during the present season the sooner it is done the better, for with the trees, like other vegetation, the sap will be early in rising if the weather continues mild as it has been lately.

Live Stock.—In this we include our working horses, and these should have an allowance of Carrots or Mangolds. About 10 or 12 lbs. each daily will be sufficient with corn and hay, and will enable them to do their work on the farm far better than when fed upon corn and hay. Horses which may be in low condition from the effect of influenza or other malady should have some of Bowick's Restorine, for it is highly spoken of by those who have used it, especially by Mr. E. T. Cheesman, Veterinary Surgeon of the Army Veterinary Department, in charge of the 5th Dragoon Guards. He reports very favourably of its effects in experiments he has tried and tested on a large number of horses for two years past, by direction of the General in command of the cavalry at Aldershot—Sir F. Fitzwigram, Bart., C.B. We are pleased to report that Down lambs are numerous and healthy. The Long-woolled ewes, too, are in good health and condition, notwithstanding we find a few flocks have suffered from abortion. This is frequently the case in consequence of internal fever. When, however, lameness to a considerable extent occurs the fever issues at the feet, and the ewes, although they suffer in condition, do not often bring dead lambs. Dairy cows should now have Savoy Cabbages and sweet straw or good hay and bran, or, what is better, wheatmeal, which can now be purchased or obtained at a low price, made or crushed from damp and cold grain. Butter-making of the first quality is paying exceedingly well at the present prices if the animals are properly fed and provided for.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—At the Council Meeting held in the Board-room at the Great Western Railway Station, Bristol, on the 31st ult., Sir J. T. B. Duckworth, Bart., in the chair, an official invitation from the Town Clerk of Bridgewater for the Society to hold its Show for 1883 in that town was read by the Secretary, and in support thereof a deputation consisting of the Mayor, the Town Clerk, and several influential inhabitants of the town and neighbourhood waited upon the Council. A letter was read from the Mayor of Maidstone asking whether the Society would be inclined to visit Maidstone in 1883, and, if not, then in 1884. As the Council considered that priority of application lay with Bridgewater, and as the ordinary time for visiting the southern district had not arrived, the Secretary was directed to reply that the Society was engaged for 1883, but subject to that they would be open to consider any invitation that might be sent. The Council then unanimously resolved that the invitation for 1883 to Bridgewater be accepted subject to the approval of the site and trial fields by the usual deputation of Stewards and the signature of the Local Committee to the printed form of requirement; the deputation of the Society, if they think fit, having authority to conclude all arrangements.



EARLY CHICKENS.

THERE are fanciers whose interest in their poultry yards is spasmodic, it comes with the great shows and soon effervesces. If they are to have any success at them it must be bought by the purchase beforehand of the best birds of the year. This kind of

fancy has no fascination for us. There are other fanciers whose chief charm it is to watch the slow and gradual progress of their pets from the egg to maturity, who take as much pains with the newly hatched mongrel as with their last cup-winner, and who find no weariness in the year-long routine of care and attention which poultry, like all other live stock, must have if they are to be successful and remunerative. These are our ideal fanciers, and for them we are always writing at the risk of becoming tedious, and recurring year by year to the same topics. Years do not vary much, and there must necessarily be some sameness in the breeder's yearly occupation. Our experience, however, increases, and if we simply relate each year the *régime* of our own yards, changes which we have found it well to make, and hints which we have here and there acquired may be profitable to others.

The exhibition season seems but just over, yet it is high time to turn our attention to the coming year of the poultry yard and its hopes. Of course, it is not absolutely necessary to have January and February chickens; this, however, depends upon the breeds we keep. Asiatics develop slowly and grow long. We fancy that the famous champions of the show pen have generally first seen light in very short days. The great autumn winners of other breeds will possibly not be hatched till March or April. We have sometimes had great success with birds not hatched till the middle of April. Such are, however, the exceptions, and have in our own case been generally on peculiarly large and free runs, and kept in very small batches. We do not like to be behindhand, however. Thus far the season has been temptingly lovely for chickens, and unless some peculiarly withering late winter comes, we shall expect to see great competition at the early poultry shows. Those who have no chickens this month can hardly calculate upon seeing real spring chickens on their table, or upon entering the lists at summer exhibitions.

For those who are sufficiently provident and fortunate to have broods already, here are a few hints. Thus far our eggs promise to be fertile in much larger proportion than they have been of late years; broods will therefore be large, and will require all the more attention. It is much easier to rear three or four chickens under a hen than six or eight. One of the first points constantly forgotten or thought unnecessary is absolute cleanliness in the coop, the ground under it, and all its surroundings. We find people fussing over all kinds of food for their pets, but ignoring this *sine qua non*. Every coop used before must be thoroughly scrubbed and disinfected, and fresh soil brought to the chicken sheds. Too often we see the unfortunate little creatures running about on floors polluted by the crowd of last autumn's stock. Success is quite impossible in such cases. A little animal food, too, at this early time is requisite. The hens can seldom in February be let loose to scratch and cater for their broods in the way of worms and insects. Their want must be supplied by a little meat minced fine. It should be given as a separate feed once a day. Never mix up such delicacies with their ordinary food: they will pick them out, leaving the rest, and afterwards, being disgusted at not finding their food always so seasoned, will refuse it and mope. For the first ten days chickens generally eat greedily anything and everything given them, then comes a time when they seem to lose their appetite and only pick daintily. This is not so observable in summer when they have liberty as now when most broods have to be much confined. The cause we believe to be in nine cases out of ten that they have not proper grit which their digestive organs require. Road scrapings or similar stuff must be sifted over the floors of their houses; or if (which we do not recommend), they are obliged from circumstances to be kept on boards, little trays of gravel must be provided. Green food, too, is very essential, and chickens cannot thrive without it; if one watches the little things let loose upon a piece of turf they are in an instant busy grazing. If, therefore, during bad weather chickens are kept from the daily airing, which they ought to have otherwise, a turf must be supplied to them, or a little chopped grass mixed with their food. There is a caution, however, to be observed in turning them out while the hoar frost is on the grass—they should not on any account be allowed to go near it. Their little feet otherwise get cramped and twisted, and their toes are often distorted for life. We need scarcely again give directions for the mixing of chickens' food we have so often given our recipes. It must be light and crumbly, and never given in such quantities as to lie about and disgust them.

There is much difference of opinion as to whether any water should be given to chickens in their early days. Some great and successful breeders allow them none for many weeks. A gentleman who has reared hundreds on this system and who strongly believes in it was kind enough to draw up a statement for us of

his experience and views on the matter. He says, "From correspondence in the *Live Stock Journal* in 1879 I was led to try the plan. Previously to this I had allowed my chickens plenty of water, so placed that they might get at it at any time. 1879 being a wet season I had no chance of proving the fact. This summer [he wrote in September] has been both dry and hot, and since April 15th to first week in June I have hatched 159 chickens, some thirty Black Hamburgs, the same number of Dark Dorkings, twenty cross Brahma-Dorkings, the remainder Black Minorcas. None of these have had any water till ten weeks old. I am so convinced of the good of this system that I do not intend ever giving water to young chickens again, or to let them out too soon on heavy dew. I fancy there may be a difference with regard to water. Your land, for instance, is deep and rich: fowls can always get plenty of grubs and moisture from it, and will seldom crave for drink. My run is dry: few grubs remain on it, and no water save that given in vessels. Young chickens, if at all thirsty, will drink till nearly bursting, and in some cases I have seen them sit back and gasp. I am confident that chickens may be reared with greater ease as I have described than by letting them go to vessels and drink their fill."

Our correspondent's letter raises a very interesting question, and one about which we should be glad to know the views of others. It is our plan not to give our chickens water for the first three weeks, but bread and milk. Without this we have found them feverish and discontented from the age of ten days or a fortnight. One of the most successful exhibitors of Polish fowls about twenty years ago gave his chickens nothing to drink but water which had been boiled with a little saffron in it. Undoubtedly some waters constantly before chickens in pans are injurious, and cause diarrhoea and death. To deprive them, however, of drink altogether seems to us so unnatural that our own system is, as we have said, to give bread and milk about twice a day till they are a month old. With this *régime* we have, we believe, been generally more successful than our neighbours.—C.

THE PRODUCTION OF NEW VARIETIES OF POULTRY.

IN one part of your correspondent "C.'s article on poultry, page 103, I feel much interest—that part, namely, which treats not so much on the manufacture of new as the revival of old breeds, notably Game. He mentions several sub-varieties as "quite unknown in the exhibition room." Very true; there has been a run upon some half-dozen colours, to the exclusion of at least as many as genuine in breed and quite equal in beauty, which can never be seen now, though in the early days of exhibitions they were not very uncommon.

But in truth had he time to search Chester or Cornwall, or one or two other counties, where, as I have reason to believe, birds are kept for cockfighting, he would, I think, have no great difficulty in recovering them, and would find them not "more or less hybrid," but of the true original type of Game bird, not corresponding to the present fancy for gawky Malay-bred mongrels, but hard in feather, powerful in leg and wing, and standing as if nothing could cut them down, as different from the fashionable bird as the spaniels in Vandyke's pictures are from the last "Jumbo" or "Topsy" in the prize list.

Or perhaps he might get help from the makers of artificial flies, some of whom, I understand, have yards whence they procure hackles, mostly Game, of peculiar tints. It would much to be regretted that such colours as the following should die out—Blue and Red Duns, Birchen and Silver Greys, Blacks, Hennys, &c. I have promised to keep one of the first for a friend; of the second I had a beautiful strain some twenty years ago, but entirely failed to recover it last year; and I think I could lay my hand on the two last, but I have no convenience for more than one cock bird. "C.," however, must be content to keep them for his own gratification, and to do without prizes. They ceased to be exhibited, I suppose, because they were not in favour with judges even when "Game fowls were Game fowls," and now if he procures his stock where the pure bred bird is found they would still less stand a chance with the modern "show-pen" mongrel.—DUCKWING.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Monday, the 6th inst, at 2 P.M. There were present Mr. R. A. Boissier (in the chair), the Earl of Winterton, and Messrs. T. W. Anns, G. B. C. Breeze, A. Comyns, and S. Lucas.

ELECTION OF OFFICERS AND COMMITTEEMEN.—The Secretary reported that he had issued voting papers for the annual election,

that seventy papers had been returned, and that the following was the result of the voting—Vice-President: Hon. and Rev. A. Baillie Hamilton, 69. Treasurers: Mr. A. Darby, 69; Mr. H. Radclyffe Dugmore, 69. Committeemen: Mr. T. C. Burnell, 65; Mr. S. Lucas, 60; Mr. R. A. Boissier, 59; the Earl of Winterton, 58; Rev. W. Serjeantson, 57; Mr. C. F. Montrésor, 51; Mr. G. B. C. Breeze, 44; Rev. G. S. Davies, 35; Mr. T. C. Lawson, 20; and that accordingly all the gentlemen named, with the exception of the Rev. G. A. Davies and Mr. T. C. Lawson, had been duly elected. The Committee examined the voting papers, and directed that the Secretary's report be confirmed.

ELECTION OF MEMBERS.—The following new members were elected: R. Stowell Bryan, South Molton, North Devon; F. Bullard, Old Cotton, Norwich; F. C. Pawle, Northcote, Reigate; H. Tomlinson, Gravelly Hill, Birmingham. The following new associate was elected: R. Collard Harrison, Sandwich, Kent.

DEFAULTING SHOWS.—Communications were read by the Secretary from two members of the Club, stating that prize money due to them from certain shows had, upon application by the Secretary of the Club, been paid.

CLUB SHOW.—Several communications relating to matters connected with the Cambridge Show were read, and the replies which had been sent thereto by the Secretary were approved by the Committee.

DATES OF MEETINGS.—The following dates were fixed for meetings of the Committee up to September 1st—Fridays, March 3rd, 13th; May 5th, June 2nd, July 7th, August 4th, all to be held at the Charing Cross Hotel at 2 P.M.; and the Secretary was authorised to summon any additional meeting or meetings should he find it necessary so to do.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane. February 8th, 1882.

THE LIVERPOOL POULTRY SHOW.—In your notes on the above Show you say that the Dark Brahma cup went to Mr. Percival's hen which was first at Wolverhampton. I beg to state that the hen to whom first honours were awarded at Wolverhampton belongs to me, and that Mr. Percival's hen was second.—ELLEN E. BENNETT, South Villa, Elgin, N.B.

[By a slip of the pen we described Mr. Percival's hen as first Wolverhampton instead of first Birmingham.—ED.]

OUR LETTER BOX.

Varieties of Barley (*Home Farmer*).—Amongst the many sorts now in cultivation must be noticed Chevalier, American, Nottingham, Golden Melon, and Moldavian, with some others. The Chevalier certainly stands highest in estimation for malting purposes, and probably also as giving the best return for cultivation, and particularly that called Hallett's Pedigree, which is known to have been selected and propagated from the Chevalier sort originally, and it is now the best variety for all dry and kind soils which prevail in the eastern and south-eastern counties, for under Mr. Hallett's judicious selection from the best, longest, and strongest ears and stalks, and the kindest and plumpest grains, it has now attained a value which it never could have done by the old plan of simple selection of sort only, for until the Pedigree stock became available the ordinary Chevalier had receded in cultivation, more particularly on loamy soils. In those districts where it has not succeeded the sorts in favour are the Nottingham, American, and Moldavian (often called Thanet). The latter is a short small grain, and will bear later sowing than any other sort with which we are acquainted. If you need further information we will readily supply it if you will state your requirements as precisely as possible.

METEOROLOGICAL OBSERVATIONS.

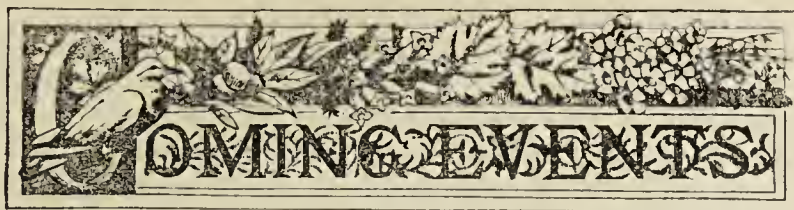
CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882. January, February.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun. 29	30.190	45.5	43.7	S.	39.9	49.5	43.8	52.2	37.9	0.133
Mon. 30	30.279	42.3	41.1	N.	40.6	44.8	38.3	46.4	32.3	—
Tues. 31	30.635	39.6	37.9	E.	40.6	42.4	39.2	42.4	28.4	—
Wed. 1	30.685	39.7	39.3	E.	39.8	40.2	29.2	50.7	21.0	—
Thurs. 2	30.583	29.6	29.7	E.	38.2	34.7	24.6	41.4	19.4	—
Friday 3	30.601	37.4	37.3	N.W.	37.3	42.2	29.5	61.3	30.0	—
Satur. 4	30.507	33.9	33.9	Calm	37.2	38.4	31.4	38.1	26.4	—
	30.490	37.0	36.3		39.1	42.0	33.7	47.5	29.3	0.136

REMARKS.

29th.—Fair, but dull morning; rain in afternoon.
30th.—Overcast, but fair.
31st.—Fair, with cold east wind; bright moonlight night.
1st.—Very fine, bright, frosty day; moonlight night.
2nd.—Foggy and dull.
3rd.—Fog early; fine and bright in middle of day; very dense in evening.
4th.—Very dense fog in morning and dark; clearer in middle day, but hazy with fog again in evening.
The remarkably high barometer still continues, with much fog, and temperature near the average.—G. J. SYMONS.



16th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
17th	F	
18th	S	
19th	SUN	QUINQUAGESIMA.
20th	M	
21st	TU	
22nd	W	Society of Arts at 8 P.M.

THE EFFECTS OF GAS ON PLANTS.

IN the Journal, page 114, there is an account of the damage caused by gas to the plants at South Kensington. This is doubtless correct, and, as you say, "it is a pity that the experience gained" elsewhere was not acted upon here, or rather possibly that it was overborne by the assertions of those who pressed for the application in this form. The fault was not so much in allowing gas to be used in the conservatory as in the manner it was carried out. I was there during the Exhibition twice, and was struck by the faulty arrangements and the great heat in the evening. One-third the number of these powerful burners would have lighted the place very well indeed, and with upper ventilation on while alight little if any injury would have resulted from this cause. Instead of that there was an almost dazzling brilliancy, exceeding in some respects the electric light, and the place was unduly heated owing to the usual closing of the ventilators. These were faults enough (excess of light and heat, and deficient ventilation), but they were aggravated by the hundreds of yards of common indiarubber tubing suspended about in festoons, graceful or otherwise, and this of itself I am sure would have caused half the damage if there had not been more than three lamps alight. I know by experience that this tubing after being in use a week will become saturated with gas, and if there is a good pressure of gas behind it will give off poisonous fumes into the room where used. This unconsumed gas is the most dangerous to plant life; and as this tubing is often sulphurous from its manufacture, this, too, would do damage.

The mere burning of the gas would not injure anything in a large place like this with due attention to ventilation, temperature, and moisture, if the funnels from lamps had had condensing attachments, or been all connected and taken outside. It must be remembered, too, that there was free passage into this place of the dangerous fumes of the anthracite coal burning in adjoining corridors, as was evident to the olfactory nerves on leaving the purer air of the conservatory; and though the arcades are draughty enough, the draughts during most of the time tended upwards towards the highest point, and met from both sides in the conservatory, to say nothing of the contamination of the ordinary atmosphere from the scores of chimneys all round.

The vapours given off during the burning of gas (except the carbonic acid) are easily condensed, consisting as they do of sulphurous acid, ammonia, and other impurities most injurious to plant life (see p. 115 for its effects on trees), and from the

5800 feet of gas named as burnt daily, 3000 ounces of liquid could have been condensed with proper appliances, and only the carbonic acid (which is incondensable and not so hurtful to plants) would have escaped. If the truth was known, this quantity of liquid—about twenty gallons!—was as much, if not more, than the leaves of the plants obtained from other sources; and what a food to expect them to live on!

This experience, unfortunately, will be considered quite sufficient to set at rest any lingering doubts as to the danger of gas for lighting conservatories; but it does not really prove anything beyond the fact that some plants are much more sensitive to its effects than others, and I have not the slightest doubt (from observations elsewhere) that these same plants would have been greatly injured by the other fumes and constant draughts if there had not been a single gas jet. Strictly speaking, no precaution was taken against this danger, and it is therefore no criterion for general judgment; but, considering the importance of some simple means of heating and lighting conservatories so as to render them enjoyable when professional or business men return from their daily duties, it would be a very good thing if the Royal Horticultural Society would institute some careful and reliable trial in small houses with ordinary (and a few more sensitive) plants, and then publish the results. A private individual doing this and reporting favourably is often looked upon as a means of cheaply advertising some particular stove. Such practical tests as these are quite consistent with the Society's work, as is also the larger question of hot-water heating, and quite as useful to the community at large as giving prizes and certificates for the finest Auricula or the best collection of fruits. For, after all, how would these wonderful flowers and fruits be raised if there were no means available for obtaining artificial heat readily? The horticultural engineer may in this respect be compared to the organ-blower in the old story, and say, "We did it," willingly allowing the organist's credit to the gardener.—B. W. WARHURST.

THE destruction that has resulted from Messrs. Siemens' display of improved gas burners in the conservatory of the Royal Horticultural Society has not been overstated on page 114. The experience there gained has been dearly purchased by the loss of many fine plants, and the only counterbalancing advantage that suggests itself is that the system, if applied to large halls insufficiently ventilated, would be equally injurious to human beings, and it is better to kill plants than people. It would be interesting to know, however, whether the actual burning of the gas has caused all the injury in this case. It is conceivable, to say the least, that the several yards of gutta percha tubing through which the gas was conducted contributed to the damage that has been done. In the manufacture of this tubing much sulphur is used, and anyone may detect its presence by applying a piece of new tubing to the nostrils. As sulphur in some form or other has presumably been the most active agent in the destruction that has been wrought, this aspect of the question appears to be worthy of some consideration.

It seems probable that the chief destructive agents have been sulphurous acid and carburetted hydrogen gases, the former being derived from the combustion, and the latter from any unconsumed ordinary gas which escaped into the building either from the junctions of the tubing being insecure or otherwise. Sulphurous acid gas is known to be highly in-

injurious to most plants, a very small proportion in the atmosphere producing detrimental effects in a short time. Many years ago experiments were made by Drs. Turner and Christison to ascertain the actual effects of some gases upon vegetation, and it was found that so small a quantity of sulphurous acid gas as one ten-thousandth in a certain volume of air—a proportion so minute as to be quite imperceptible to smell—was sufficient to destroy the leaves of plants confined in it in forty-eight hours. Sulphuretted hydrogen is injurious in a similar degree, but its action differs from that of the acid gases. In the experiments already referred to it was found that it caused the leaves to hang down perpendicularly, becoming flaccid and lifeless in appearance, and from this the plants so affected rarely recovered when removed to a suitable atmosphere. The acid gases affect the tips of the leaves first, the discolouration gradually extending to the leafstalk, and with careful treatment plants have resumed growth even when seriously affected.

Carbonic acid gas has been found to be deleterious only when in excessively large quantities. In pure air the proportion of carbonic acid varies from 0.035 to 0.04 per cent., but in the atmosphere of towns it may be as high as 0.1 per cent. Some continental observers have found that some plants will bear 8 or even 10 per cent. without injury, while a few have been slightly affected by 2 per cent.; but most plants have been found to succumb to a proportion of carbonic acid gas as high as 20 per cent. when the air has been confined to a particular vessel.—C. W.

VINES AT LONGLEAT.

(Continued from page 108.)

EARLY TRAINING.

IMMEDIATELY after planting the young Vines had small stakes placed against them to conduct them to the trellis, and when they reached the trellis a stake was also tied on to the top of the wires above each plant for the purpose of fastening the young soft growth to as it progressed. When the Vines were about 9 or 10 feet long they were stopped for the first time, the laterals all being stopped to one leaf as they were produced, and not more than one leaf or two at a time was allowed to be made on the main rod after this without the point of the shoot being stopped. In some cases the upper eyes started, but the stopping was still persisted in, a watch of course being kept on the lower eyes, to which, however, no harm came, and the canes swelled regularly all their length, made some very leathery-looking leaves and plump eyes, and most of the latter proved to have two or three embryo bunches in them—in fact they were just like good Vines in pots.

It will be seen that here again I have not followed the orthodox method. It is generally supposed to be necessary to allow young Vines to grow very much more than I have done, the idea being that a large growth of foliage produces a corresponding large amount of root-action, which no doubt is true. It will also be seen that I had left no space for a large amount of growth at this time, for the temporary Vines being placed along each side of the centre and trained over the path on the trellis, left not more than about 12 feet for the younger Vines to run in a straight line without overlapping their elder brethren. Was I, then, favouring the temporary Vines at the expense of the permanent ones? for I have already acknowledged that the root-growth corresponds in quantity to the growth of foliage. I do not think I was, at any rate that was not my intention, and I must here state that the quality of the roots also corresponds with the quality of the foliage and the stems, and that mere quantity in either case is not the chief object.

As far as I know 9 or 10 feet of rod is about as much as we can bring to perfection during the first year of a Vine's existence. This 9 or 10 feet being strong and fully matured is a good proof that its roots have been sufficient, and it seems to me that to attempt to produce more roots by means of top growth which cannot be ripened will also produce roots which will be immature at the end of the season, and which, even if they could survive, could not be of much benefit to the Vine. Some people are greatly afraid lest the roots of their Vines and fruit trees should enter cold soil and so produce immature growth, such as will be a prey to all the evils to which vegetable life is subject, yet they encourage growth which cannot possibly ripen, and thus bring about the very evil they have been so careful to guard against in other ways. This part of my argument holds good even where light and air can reach the foliage which I take to be excessive, and is produced, say, later than the month of July; but what shall we say about that which is produced much later in the season, and which from being encouraged to grow anywhere and everywhere much of it is produced in semi-darkness? If what I have stated about that which is produced abundantly in good light be correct, then the evil here must be greatly multiplied. We do not want mere length of timber in our Vines, we need circumference as well, and more than all we require solidity such as is guaranteed by short joints and plump buds, and this can only be produced by thick leathery foliage such as may be looked for in vain in a thicket of growth.

I do not think there is anything remarkable about the system of training I have adopted and now recommend. It is something like the plan we should probably follow if we had never heard of any other, and perhaps that will account for my following it, for I have never yet read an essay on Vine culture. I had had some rather heavy practice thrust on me somewhat unexpectedly before such a work was placed in my hands, and then when I had time to open its pages I saw their contents did not agree with what I had found out for myself, and—well, I closed the book again. That was about fourteen years ago. I have continued gaining a little knowledge in my own way ever since, and have come to the conclusion that I shall have to live to be a very old man before I know all about it.

THE FIRST PRUNING.

Having taken the greatest possible care to grow the Vines through the first twelve months, I daresay it will surprise those of my readers who do not profess to understand the art of Grape-growing as it is followed by most of our leading men of the present day, when they are told that the proper way to proceed next is to cut them down; and I daresay it would surprise the fore-mentioned professionals if they had not already heard something about it to be told that once more I did not choose to follow the fashionable plan. Well, then, the non-professional will say, "If you cut them down and throw one part away, which part will it be, top or bottom, since you have taken so much pains with the top?" In my case probably the top would be the most valuable, for Vines are so free to strike root at either end that with the excellent wood now produced I almost dare give an opponent the part with the roots and a challenge at the same time as to which shall surpass in three years' time—the headless roots or the

rootless heads. Of course my opponent would be expected to follow what is now generally considered the correct method, and I should want to be allowed to make my method as I proceeded, according to circumstances. The first part of it, however, would be something in this way—a length of stem, say a yard or 2 yards long, would be buried just below the surface, merely leaving the upper end or the middle part out, and I should expect some vigorous growth to start from it in more than one place; but be it remembered I have not tried the plan, and it only occurs to me just at this moment. But I will endeavour to give my reasons for believing it would succeed. Whatever may be the case with other plants, the Vine's principal storehouse is not in its roots, but in its stems and branches, and these, if some means could be found to keep them merely supplied with water, would probably be independent of the roots through a great part of the growing season. At any rate we know that there is no visible root-action till many of the leaves are fully grown, and the stem (if a single one and healthy) is from 9 inches to a foot long. The moment the roots begin to make such growth as would be visible were they uncovered can be told by the foliage, which rapidly changes from something like pea green to a rich dark healthy colour. The colouring matter, at first almost blue, may be seen in blotches, and then as it mixes with the yellowish colour already in the leaf and produces the bright green we have a sure index that there is perfect harmony between root and branches, and that each will now help the other.

But "what about those plants which are cut down to the ground and where no stem is left?" There may be very little visible stem, but there is something underground besides roots which one able writer lately called "underground stems," and I think he is correct in so designating them. Those which are roots at first become enlarged, and then can only act as connecting channels between the roots and the branches: they, having no spongioles or feeders, can do nothing of themselves unless it is to imbibe moisture through their epidermis. True, they have the power to form roots speedily should any accident befall the roots proper, but so has any part of the stem of the Vine if covered with soil or any material which will keep it moist; and very often, as we know, it will not wait for this to be done, but will form them in the air if the latter is more to their taste than the border is. Cutting down the stem of a Vine does not add to the vigour of the growth produced in the same way or in the same proportion as cutting back does in the case of the Apple, Peach, or other fruit tree. The superiority of the shoot made when a young Vine is cut down which has ample roots to sustain a large amount of stem and foliage is more apparent than real, as may be seen afterwards when it comes to ripen, for the stem will generally be found flattened, the pith in large proportion, and the cells drawn out to an undue length with their sides nearly collapsed, and this state of things is never wholly obliterated, but may even now be detected in half the Vines in the kingdom. It seems to me that water and pent-up energy play a too important part in such cases. The growth at the end of a young healthy Vine left 12 feet long will not compare unfavourably even at starting time with that of a similar Vine which is cut down to the ground. I mean it does not lose size in the proportion many of our teachers would lead us to

expect, when it is taken into consideration that all the lateral buds have to be sustained, while the cut-down one will have only the terminal shoot. Then if we pass on a little further to the time when root-action commences in earnest, and the long Vine has its side shoots stopped to two or three leaves, it has altogether the best of the race.

In the case of the Peach, Plum, or Apple it is not so. Cut back a Peach tree which is healthy but rather weak, and you would at once have growth comparatively solid and of good quality twice or thrice the average strength of that which was removed. The growth of the roots of the Peach tree having preceded that of the top by some weeks, the steam is up as it were in anticipation of spring, and its full force is at once applied to such parts of the tree as may be left.

It must always be remembered, then, that while the roots of other fruit trees precede the top growth, and are ready at the summons of spring, whether it be a natural one or such a substitute as we can make in our houses, the Vine has nothing but its stored-up material to start with; and I believe this is equally distributed throughout its stems be they above the ground or below it, and hence whether a Vine is trained in what is generally supposed to be the best way for the sap to flow—i.e., with a gradual incline throughout, or whether some of its branches are horizontal or even bent down the reverse way, provided the plant is healthy, is not mutilated overmuch, and the main stem is sufficiently large for the requisite supply of water, you get nearly as strong a growth at 60 feet from the root, even on rods bent the reverse way, as you do on those situated near the roots and trained in such a manner as would, if they were like non-climbing plants, give them a decided advantage.

It may also be taken for granted that a thousand branches are just as easy to supply as one, but as in the case of supplying a town with gas or water we must have a good main—and building up the main was one of my principal aims from the first. I have endeavoured to take my readers with me in imagination during its construction, and the next thing will be to consider to what length that main is perfect and suitable for the enormous supplies it will afterwards be called on to furnish. I find on examination it is perfect to all outward appearance to the length of 7 or 8 feet. Shall I, then, gain anything by cutting it down to 2 or 3 feet? Coming to actual measurements I see by the marks still present on the Muscats that they were not cut to any regular length at the first pruning, the shortest being about 6½ feet, and the longest 9 feet.—WM. TAYLOR.

(To be continued.)

THE GLOXINIA.

It is my opinion that the Gloxinia has not yet come to the front as a winter-flowering plant. It must be understood that I am an advocate for producing flowers during the winter months, and endeavour to grow such plants as will bear cutting without any permanent injury to their future well-being; and, besides, where a daily supply of cut flowers is required it perhaps saves the mutilation of such valuable plants as Camellias, Azaleas, and other plants. More than that, it behoves every gardener to produce all the flowers he can, and according to my experience the Gloxinia will help him.

Obtain some seed from a reliable source, and sow the first batch in March in a shallow pan, or, if a deep one, well drained, with not much soil. The seed must be very slightly covered, and the soil sandy and light but firm. Place the pan in heat, and cover

it with a piece of glass, which should be removed every morning and the moisture wiped off. As soon as the plants appear the glass must be removed more frequently, and when strong enough they must be placed on a shelf near the glass, but still in heat. There they will soon grow large enough to be pricked off into pots or pans of moderately fine sandy peaty soil. After a time each plant will require potting singly, when they may be placed on a stage near the glass with cocoa-nut fibre refuse or ashes under them. They must have every attention as to watering and shading from strong sunlight, and the foliage must not be syringed. They must not be overpotted, because this plant is not entirely dependant upon the soil, for the atmospheric treatment has much to do with success in its cultivation. They will flower in the early autumn months, and by making another sowing of seed at a reasonable time plants may be had in flower to follow on in the winter months, to be succeeded by the corms that have been resting, so that this plant may be had in bloom for more than half the year. I have them just coming into flower.—CREDEMDA.

THE SECKLE PEAR.

YOUR excellent correspondent, "WILTSHIRE RECTOR," has raised the question as to the merits or demerits of this Pear. I do not pretend to be an expert, but I raise a side issue, and would like to say something for a Pear with a century's culture for a recommendation. In vegetable as well as animal physiology there is much to be urged in favour of the doctrine of "the survival of the fittest," and I hold that a Pear that is grown still after being in favour a hundred years, is worth attention. The following is the character given the "Seckle," then called "The Red-cheeked Syckle," by Hosack, in a lecture before the New York Horticultural Society in 1819, and it had then been some time in cultivation—"The flesh is melting, juicy, and most exquisitely and delicately flavoured. The time of ripening is from the end of August to the middle of October." He then alludes to the character of the tree—"It is singularly vigorous and beautiful, of great regularity of growth and richness of foliage, very hardy, and possessing all the characteristics of a new variety." Sir Joseph Paxton, after quoting the above authority, adds his experience, to which it would be interesting to know if growers of the present day agree with—"Subsequent experience in this country has amply confirmed the American accounts. It is found to exceed in excellence of flavour the very richest of our autumnal Pears, possessing a high vinous aroma, which can scarcely be compared to anything in fruits, unless a concentration of the taste peculiar to the Swan's Egg." He then sums up the great fault of the variety, that "it only remains in perfection, when ripe, for a very few days, speedily decaying after being gathered." The period of ripening under ordinary circumstances then was the end of October. In this locality it was foolishly removed in many cases, I understand, to make way for some new but less desirable variety.—W. J. M., *Clonmel*.

CHOICE IRIDS.

BABIANA.

IN brilliancy of colours few of the many richly-tinted Irids surpass the leading species and varieties of Babiana, though these do not present the diversity of floral form which distinguishes a large proportion of their allies. The flowers are regular and symmetrical, with six ovate divisions, sometimes with a tube of varying length, occasionally fragrant, and, with the exception of a few obscure species, they are remarkable for their rich self colours, or the striking contrast of very distinct hues in the same flower. In habit the plants resemble most other Cape bulbous Irids, having stems 6 to 9 inches high arising from a small bulb-like corm, bearing tapering leaves, which are what botanists term plaited—that is, they appear as they have been folded laterally, so that they have, as it were, a ridge or furrow surface. They are usually covered more or less densely with long hairs, which in one or two species give a specific distinction to the plant. The flowers are produced in raceme-like scapes, each bearing half a dozen or more, several of which are expanded at the same time, so that the plants are far from having the weedy appearance characterising some natives of the Cape that have obtained a place in our houses and gardens, considerably to the discredit of many really handsome plants now either lost to cultivators or greatly neglected. Perhaps Babianas can hardly be included amongst neglected plants, for few gardeners are unacquainted with at least one or two of their varieties; and in some establishments where cool-house plants receive a portion of the attention they so well merit they rank amongst the most esteemed favourites, together with the *Ixias*, *Watsonias*, *Sparaxis*, and others of similar habit.

One very great point in their favour is the readiness with which

they flower and their few cultural requirements—such, indeed, that any amateur can grow them even though he does not possess that general plant repository in small gardens, a greenhouse. This, however, applies chiefly to those who reside in the favoured south or sheltered districts within a hundred miles north of the metropolis; for though even farther north than that they may under very favourable circumstances be grown satisfactorily outside, house culture is much to be preferred where practicable. They will not withstand uninjured a temperature much below freezing point, and in all situations their chief enemy is excessive moisture in the soil, either from want of adequate drainage in the borders, the position being low, or the soil heavy and retentive of moisture. The natural habitat of Babianas in the neighbourhood of Cape Town is a good indication of their requirements. They are found in the dry sandy plains where the soil is loose, and at the time of the dry season quite dust-like. There they experience the heavy rains of the growing season and the parching drought of the season of rest, and though, like all conditions, these require modifying under cultivation, yet there are two well-marked periods in each year of the plant's existence, and some approach to these is needed to insure success. Another fact deserves attention, and it has some reference to previous remarks concerning the hardness of the Babianas—namely, they are not found at such high elevations as some of their allies, and on this account are more readily injured by frost, needing careful protection in the open ground.

When it is desired to grow these beautiful Irids out of doors a position for the border should be carefully selected, taking into consideration the hints already given. It is well to devote a small border to all such rather delicate forms, which, if the subsoil is naturally porous, will require no attention in draining, and in few gardens perhaps would this be troubled about. It need not, however, be very elaborately done, as the plants are not of deep-rooting habit, and if the surface soil is moderately light to the depth of about a foot, the position being sheltered and not too damp, little difficulty will be experienced in obtaining fairly satisfactory results. Avoid the evil of planting too deeply; 6 inches below the surface is ample, and in the case of small corms even less than that will be sufficient, though they may need replanting in the course of a year or two. Indeed, this replanting is desirable annually, so as to remove the offsets, which weaken the parent corm when allowed to remain in clumps. Planting may be done in favourable weather during the present month in the case of purchased corms or those in the ground which have not started yet, or in autumn when the growth and leaves have been thoroughly matured. As winter approaches a mulching is necessary to protect the corms from frost, cocoa-nut fibre refuse being the most suitable material, placing it on to the depth of 5 or 6 inches before severe weather is experienced. A little well-decayed manure can be incorporated with the soil, but it must be employed sparingly, and perhaps an occasional supply of weak liquid manure when the plants are growing is preferable. When they cannot be safely allowed to remain in the border during winter take up the corms in late autumn when the leaves have died, and either place them in pots or store them in sand in a dry and cool position under cover.

For my own part I prefer the Babianas in pots; there is less danger of loss, and with sufficient stock and a little careful management the flowering season can be considerably prolonged. A light sandy compost is required, with a small proportion of well-decayed manure, and, as in the case of all such plants, efficient drainage is essential. Pots of moderate size are preferable—namely, 60's or 48's, placing two or three corms in the former and four or five in the latter, according to the size and strength of the plants and the habit of the particular varieties or species. As the young shoots appear above the soil water must be carefully supplied, but when they are more advanced the supplies must be liberally increased, still further aiding the progress of the plants by applications of very weak liquid manure once or twice a week. This treatment may be continued until the flowers have faded, when a gradual reduction in the supply of water will be needed to induce a thorough maturation of the corms; but at the same time the leaves must be allowed to die naturally, as the longer they are retained the stronger will the plants be the following year. It also assists the offsets considerably, and if it is desired to increase the stock this is an important matter. Though the plants require a light position during growth some slight shade is necessary when the flowers are expanding, or they soon become exhausted if exposed to the sun; subsequent to the flowering, however, a sunny position is a great advantage. In commencing repotting first moisten the old dry soil thoroughly, then clean the corms carefully, separating the offsets, and pot in a compost as already recommended. A few potfuls, however, may be top-dressed without turning the plants out, removing a little of the surface soil, and giving a dressing of light fresh compost containing a small proportion of manure. By adopting this practice a few specimens can be obtained with a greater abundance of foliage than the majority of those separated in potting, but the flowers are not quite so fine as a rule.

Two modes of increasing the plant can be adopted, one by removing the offsets when lifting or repotting the corms, and the other by seeds, which some of the varieties produce very freely. The former is the quicker method, as the seedlings are three years in attaining a flowering size. The offsets should be placed in pans or boxes until large enough to pot singly, as they will be the second year. The seeds are best sown in pans placed in gentle heat, almost any time being suitable for the sowing. The young plants so obtained must be carefully transplanted as they advance, finally giving them similar treatment to that accorded the older plants.

The culture of the Babianas has been described at some length because similar treatment with few exceptions will suit several of their allies, which will be referred to on another occasion, such, for instance, as the Watsonias, Ixias, and others.

BABIANA RUBRO-CYANEA.—This is one of the most handsome of the genus. It is of moderate height, usually 6 to 8 inches, with

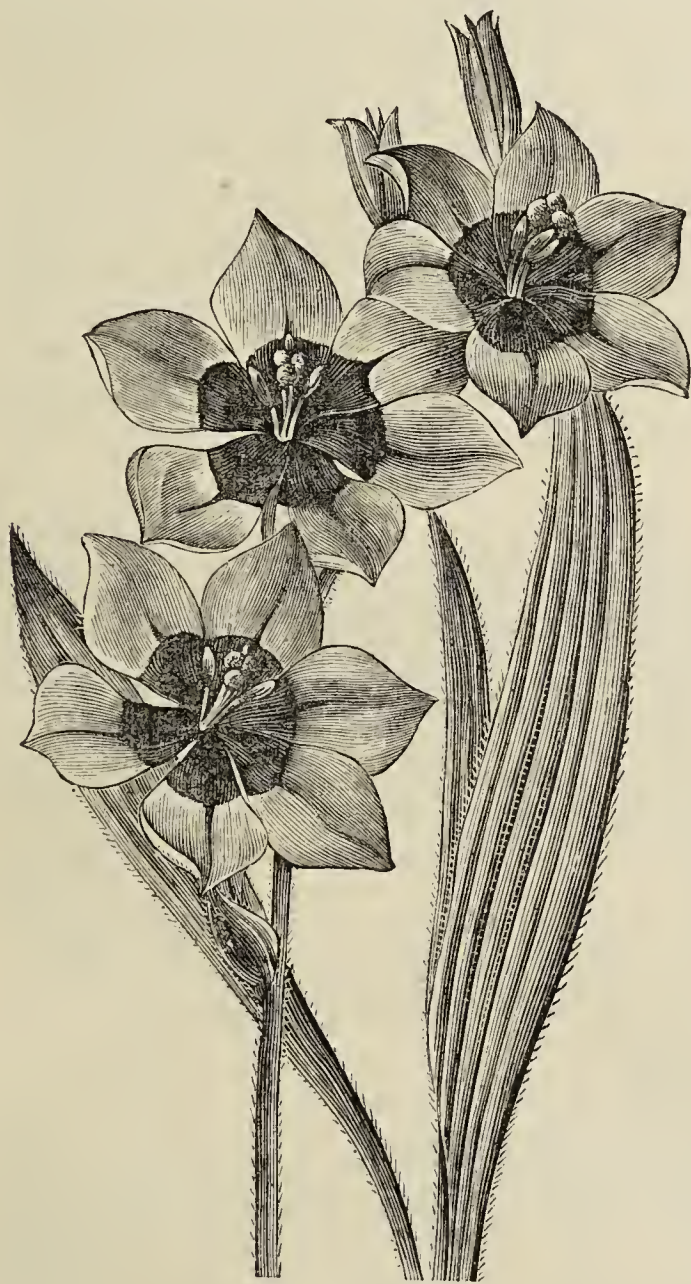


Fig. 27.—*Babiana rubro-cyanea*.

broad plaited leaves, downy on the under surface; the flowers 2 inches or more in diameter, with ovate divisions, the upper half of a most brilliant blue, and the lower part rich crimson, forming a central zone in striking contrast to the outermost ring. The form of the flowers is well shown in the woodcut (fig. 27). This species usually flowers in May or June, but occasionally as late as July. It was first received in England in 1796, having been imported from the Cape to Holland, and thence to this country.

B. VILLOSA.—One of the numerous plants which first appeared in this country in the Royal Gardens, Kew, where it was introduced rather more than a century ago by Dr. Russell. It has smaller flowers than the preceding, with narrower divisions, rather more widely spreading; yet it is scarcely less attractive in appearance, for the colour is a most brilliant crimson, a shade that is excelled by few plants in richness. The anthers are violet-blue, and the outer surface of the perianth purplish—additional recommendations.

B. STRICTA.—This is considered by some recent authorities on the subject as a typical species, including several forms that older writers

have considered as distinct species. It is an elegant plant, with neat flowers of moderate size, not nearly so bright as the two preceding, yet very pretty. The perianth divisions are narrow and acute, the outer three being white, and the inner three lilac-blue, with a dark blotch near the base of each. This difference in the colour of the petals imparts a very distinctive appearance to the flowers. It is one of the oldest of the forms known in cultivation, having first reached England in 1757, but, like some other old plants, it is not abundant even now. Fig. 29 (p. 137) portrays a scape of flowers and leaves.

Of several other noteworthy forms the most beautiful are the following—*B. angustifolia*, of dwarf habit, with bright blue fragrant flowers, slightly pink in the tube; *B. plicata*, flowers pale violet-blue, the anthers being also blue, and the stigmas yellow, very fragrant, resembling the Clove Carnation; *B. sulphurea*, flowers cream-coloured, with anthers and stigmas the same colour as the preceding; *B. disticha*, flowers pale blue, with narrow divisions undulated or crisped on the margins, and possessing a well-marked Hyacinth-like fragrance; *B. ringens*, very handsome, with scarlet flowers irregular in form, one division being longer than the others—it is the oldest of the species known in England, having been introduced in 1701; *B. sambucina*, purple flowers, with a fragrance suggestive of Elder flowers; *B. tubata* and *B. tubiflora*, which are very much alike, having flowers with long gaping tubes blotched with red.

It is worthy of mention that the corms of this genus in the Cape district are said to be eaten by the Hottentots, and are a favourite diet with monkeys, from which circumstance the Dutch settlers named them Babianer, and from that we have the latinised Babiana. The substance of the corms is floury, and when roasted they are said to resemble Chestnuts.—L. CASTLE.

ROYAL HORTICULTURAL SOCIETY.

THE Annual General Meeting of this Society was held in the Council-room, South Kensington, at 3 P.M., on Tuesday the 14th inst., the President, Lord Aberdare, in the chair; and the following members of the Council were present—Sir Trevor Lawrence, Bart., M.P., Colonel R. Trevor Clarke, Major Mason, G. F. Wilson, Esq., Rev. Harpur Crewe, G. T. Clarke, Esq., and Dr. Robert Hogg (Secretary). There was a small attendance of Fellows, and the proceedings were of short duration.

DR. HOGG first read the announcement calling the meeting, the minutes of the last general meeting, and the names of thirty applicants to be admitted as Fellows. These were duly elected. Dr. Masters and Mr. John Lee being appointed the scrutineers of the ballot for the election of officers and members of the Council, to supply the vacancies caused by the death of Dr. J. Denny, and the retirement of Arthur Grote, Esq., and Sir Chas. W. Strickland, Bart.

LORD ABERDARE, in commencing a few remarks upon the present position and prosperity of the Society, said that he felt sure he was acting in accordance with the wishes of the meeting in considering the Report, which had already been circulated amongst the Fellows, as formally read, and he would, therefore, proceed to make some brief comments upon the Society's condition. It was, he said, commonly observed that in the time of prosperity a man's friends are very abundant, but they usually became scarce in a period of adversity. This he was happy to see was not the case with the Society, for when their affairs were unsatisfactory and their difficulties great, the attendance at the general meetings was very much larger than it is now, when the Society is gaining a more substantial position. He regretted to have to notice that reference to the death of Dr. Denny was omitted from the Report. They had lost a useful and indefatigable friend, one who was deeply interested in horticulture, and who spared no efforts to advance its interests. His lordship congratulated the members upon the increase in the number of Fellows, which he considered a very satisfactory sign of the Society's progress. It was true that there was a decrease in the number of life fellowships, but this was no loss in a financial point of view. The four-guinea Fellows had, however, increased from 435 last year to 449 this, and the two-guinea Fellows had increased in similar proportions. He made some observations upon the comparative financial position of the Society in previous years, and referred to the adverse weather which prevailed during the exhibitions of the past year, and which caused the results to be less favourable than they would otherwise have been. The litigation undertaken with the Commissioners on behalf of the debenture holders had resulted in a judgment from Mr. Justice Fry in favour of the Society; but the Commissioners having appealed against the decision, the case had been transferred to another Court, and was expected to come on for hearing on the day of the meeting, which had occasioned the absence of the Treasurer, Mr. W. Haughton.

During the past year two important exhibitions had been held in the Society's gardens—namely, the Medical and Sanitary Exhibition and the Smoke Abatement Exhibition. Neither of these, but especially the latter, had added much to the Society's funds, but there was the satisfaction that they had assisted in bringing two very important subjects prominently before the public. In conclusion his lordship called the attention of the Fellows to the admirable manner in which

the practical portion of the Society's work was continued at Chiswick, and especially to the large number of seeds and plants distributed amongst the Fellows.

Mr. GUEDALLA moved the adoption of the Report, and considered the Society was deeply indebted to Lord Aberdare and the Council for their services. The Report was then adopted unanimously.

As the result of the ballot it was announced the gentlemen nominated by the Council had been duly elected, and the proceedings then terminated with a hearty unanimous vote of thanks to the Chairman.

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF FEBRUARY THE 14TH, 1882.

THE Council have again to congratulate the Fellows on the increase in their numbers and in their income which the past year has shown, and the more so as such increase has for several years past been progressive in both respects. The receipts from the Great Show again suffered from unfavourable weather, which marred the effect of the brilliant display made by the exhibitors, and seriously affected the attendance of the public. The loss entailed thereby upon the finances of the Society fortunately was small, and the evening fête, which gave great satisfaction to the Fellows, much more than paid its expenses. The promenade shows in the conservatory, which are steadily growing in the public favour, did not in any way interfere with the scientific work of the fortnightly Committee meetings, of which they were an extension. They have been a source of enjoyment to the Fellows and their friends who attended them, and have contributed large and attentive audiences at the interesting lectures delivered at them, some of which have been published *in extenso* in the Society's Journal. The other minor shows, including those of the Auricula and Pelargonium Societies, maintained their usual high standard of excellence, and afforded much pleasure to visitors. The lawn tennis courts have been much used and appreciated by the Fellows resident near the South Kensington Gardens.

The International Medical and Sanitary Exhibition, for the purposes of which the Council granted the use of a large part of the arcades of the Society, proved a success financially, and the Council trust has been useful to the nation by teaching in a visible and practical way the leading principles of sanitation, and the best external means of preventing and alleviating disease.

The Council wish to record their sense of the cordial and pleasant nature of their relations with the gentlemen who represented the Executive Committee of this Exhibition.

The Smoke Abatement Exhibition, which is still in progress, will, the Council hope, effect practical good in diminishing waste of fuel, and the injury to the health of the inhabitants and destruction of plants which smoke occasions in and around our great cities, towns, and manufacturing districts.

The Council have no doubt the aid they have given to the laudable objects of these exhibitions will have the approval of the Fellows.

The suit by the Commissioners of the Exhibition of 1851 against the Society and the debenture holders, the position of which was fully explained to the Fellows in last year's Report, came on before Mr. Justice Fry in June last, and was, after hearing, dismissed with costs, to be paid by the Commissioners to the Society and to the representative of the debenture holders. Against this judgment the Commissioners have appealed, and the Council believe the appeal will very shortly come on for hearing. If the decision of Mr. Justice Fry be affirmed, as the Council have reasonable grounds for hoping will be the case, the Society will be placed in a much more advantageous position than it has occupied for many years.

The scientific work of the Society has been carefully attended to during the year.

The Chiswick Garden has been maintained in a high state of efficiency, and has enabled the Council to have much useful experimental work carried out there. In this work the Fellows appear to take an increasing interest, and the public generally receive as authoritative the results which have been attained.

The Fruit Committee have had under examination 242 different sorts of Potatoes, and from America a number of unnamed seedlings. The season proving favourable for these the experiments were very successful, and the Committee were enabled to recommend seventeen varieties for the Society's certificates on account of their improved quality and appearance. Some new Peas were also grown, and of these three kinds received certificates. There were also many minor varieties of vegetables which received attention.

The kinds of Raspberries in cultivation being numerous, it has been thought desirable to institute a trial to ascertain their respective merits and character. With this view a large collection has been secured, and the result of the investigation will, when completed, be published in the Journal. Experiments will also be instituted in the coming season to ascertain the distinctive characters and uses of new varieties of Peas, Lettuce, Tomato, and Shallot.

The Floral Committee has been mainly occupied in examining Begonias, of which the Society possesses one of the most complete collections existing, and Pelargoniums, of which many striking varieties were presented by M. Lemoine of Nancy. Pompon Dahlias, Nasturtiums, Pentstemons, Gloxinias, Ceanothus, Neriums, and other miscellaneous plants have been examined.

The crops of fruit, though below an average, nevertheless furnished good opportunities for pomological investigators to acquire a knowledge of the subject, there being a collection of 268 varieties of Apples

alone arranged for examination in the fruit room. The Vines in the great conservatory continue to supply abundant crops.

The Tea Roses, which, in accordance with the intention announced in last year's Report, have been planted in the orchard house, are making satisfactory progress.

The Rockery, which was formed a few years ago, has been a great attraction to the Fellows and visitors. It is planted with the choicest rock and alpine plants, which are now well established, and has during the year been considerably enlarged.

To aid in fostering a taste for hardy border flowers the Council have largely increased the number of those formerly in the garden.

The applications of 942 Fellows were granted as follows—18,886 plants, 16,644 packets of seeds, 4000 Gladiolus bulbs, 5472 Strawberry runners and cuttings of fruits trees : 45,002 total distribution.

In addition to the usual choice varieties of vegetable and flower seeds, seed of a selected strain of Begonia will be distributed during the present year.

The sales of garden produce during the year appear in the accounts. A large quantity of Grapes still remain, which are being disposed of.

A requisition having been made by the Chiswick, Turnham Green and District Horticultural Society, of which the Duke of Devonshire is President, for the use of the garden in which to hold an exhibition the Council gave their consent, and a Show was held which was so numerously attended and successful that the Council hope that at some future time they may be encouraged to make a similar use of the garden.

The Council have pleasure in acknowledging the liberal donations made to the Chiswick Garden, among which are—the Royal Gardens, Kew, 68 herbaceous plants; the Royal Botanic Society, a specimen *Araucaria excelsa*; Botanic Garden, Cambridge, 77 herbaceous plants; Mr. T. S. Ware, 141 herbaceous plants; G. F. Wilson, Esq., 37 herbaceous plants; Messrs. H. Lane & Son, a collection of Roses; Mr. C. Turner, ditto; Messrs. Paul & Son, ditto; Messrs. J. Laing & Co., ditto; Mr. J. Fraser, ditto; Mr. C. Turner, 111 varieties of Chrysanthemums; Mr. H. Herbst, a collection of Palms; Baron Ferdinand von Mueller of Melbourne, collection of seeds. The Society is indebted to many Fellows and others for liberal donations of plants.

AUDITORS' REPORT.

January 30th, 1882.

My Lord and Gentlemen,—We have gone very carefully through the books of the Society, and we have compared every item with the vouchers produced. We find the accounts perfectly correct, and the books kept in a clear and thoroughly efficient manner.

With regard to the Chiswick accounts, there is still room for improvement by giving every item of the ready money receipts separately, instead of in a lump sum monthly, over which there is no check. Mr. Dick has prepared a book* which will carry out this suggestion.

We offer our congratulations on the gradually improving condition of the Society, the annual subscriptions of last year showing an increase of £213 over the previous year, and of £262 over that of 1879. The resignations of Fellows also show a decrease, a proof that there is a greater feeling of stability among them as to the prospects of the Society. There is also an increase of £90 in the daily admissions at the gates.

R. A. ASPINALL.

JOHN LEE.

JAS. F. WEST.

To the Council of the Royal Horticultural Society of London.

BALANCE SHEET, 31ST DECEMBER, 1881.

DR.		£ s. d.		£ s. d.	
To Sundry Creditors—					
1880		25	9	2	
1881		1,375	7	7	
„ Life Composition Account				1,400	16 9
„ Additional Debenture (C. J. Freake)				410	0 9
„ Legacies received				5,000	0 0
„ General Revenue Account—Balance carried forward				1,887	8 9
				1,721	4 1
				£10,419 10 4	
CR.		£ s. d.		£ s. d.	
By Capital Expenditure				7,111	0 2
„ Debtors, viz:—					
		31st Dec, 1880.		1881.	
		£ s. d.		£ s. d.	
Annual Subscriptions outstanding ..		351	15	0	54 12 0
Garden Produce		20	2	9	142 18 9
Sundries		6	12	8	23 13 0
		£221 3 9			
„ Smoke Abatement Exhibition				8	3 11
		£378 10 5		£229 7 8	607 18 1
„ Investment—3 per cent. Consols				1,892	11 3
„ Cash at Bankers				786	0 5
„ Petty Cash in hand				22	0 5
				£10,419 10 4	

We have examined the above Accounts with the Books and Vouchers, and we find the same correct—

28th January, 1882. JOHN LEE, R. A. ASPINALL, JAS. F. WEST, } Auditors.

* This book has been approved of, and is in use.

ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDING 31ST DECEMBER, 1881.
EXPENDITURE.

	Cash paid.			Debts payable.			Total.					
To Establishment Expenses:—	£	s.	d.	£	s.	d.	£	s.	d.			
Salaries.....	262	0	4									
Wages	253	15	4									
Printing, Stationery and Cards	120	9	6									
Postage	58	4	3									
Gas	26	14	3									
Miscellaneous.....	277	16	7									
Law Charges	50	0	0									
	<hr/>			1,049	0	3	53	13	7	1,102	13	10

„ Special Expenses in Relation to Horticulture:—

	Lecturer and Demon- strator on Botany	150	0	0				
„	Plant and Seed Dis- tribution	84	12	2				
	Journal	0	0	0				
	Fruit and Floral Com- mittees.....	79	7	8				
	Grants in aid	55	0	0				
		<hr/>			368	19	10	134 12 0 503 11 10

„ Chiswick Garden Expenses:—

Rent, Rates, Taxes, and Insurance ..	185	0	3						
Labour	1,052	18	8						
Implements, Manure, &c.	135	7	3						
Coal and Coke	193	18	6						
Repairs	55	12	10						
Trees, Plants, Seeds, &c.	51	19	8						
Superintendent's Salary	150	0	0						
Water	3	0	9						
Miscellaneous	51	17	8						
				1,879	15	7	234	8	11
				2,114	4	6			

„ Kensington Garden Expenses:—

Rates, Taxes, and Insurance.....		414	19	3					
Superintendent's Salary		100	0	0					
Labour		491	3	6					
Repairs.....		217	0	6					
Coal and Coke		43	0	0					
Implements and Manure		11	16	7					
Water		5	1	6					
Reading Room		21	9	9					
Bands		36	6	0					
Miscellaneous		20	9	0					
					1,361	6	1	166	11 1
								1,527	17 2

„ Evening Fête:—

225 7 10 225 7 10

„ Exhibitions:—

Advertising.....	322	3	3					
Prizes and Medals.....	32	9	0					
Bands	93	17	0					
Superintendent of Flower Shows ..	25	0	0					
Labour	97	19	4					
Judges' Fees	0	0	0					
Sundries	177	10	9					
Police	20	18	0					
				769	17	4	786	2 0 1 555 19 4

£5,714 6 11 1,375 7 7 7,089 14 6

„ Balance to General Revenue Account:—

442 12 7
£7,532 7 1

INCOME.

	Cash received.			Debts receivable.			Totals.		
	£	s.	d.	£	s.	d.	£	s.	d.
By One-fifteenth Life Compositions..	501	4	0	.....			501	4	0
„ Annual Subscriptions	4,056	3	0	54	12	0	4,110	15	0
„ Exhibitions	1,203	12	11	.....			1,203	12	11
„ Medical and Sanitary Exhibition	186	5	9	.....			186	5	9
„ Evening Fête	347	10	0	3	0	0	350	10	0
„ Daily Admissions	347	14	6	.....			347	14	6
„ Garden Produce	443	18	9	142	18	9	586	17	6
„ Packing Charges.....	36	12	6	.....			36	12	6
„ Miscellaneous Receipts	126	0	4	20	13	0	146	13	4
„ “ Davis Bequest ”—Interest ap- propriated under provisions of Trust towards Prize Money .. }	62	1	7	.....			62	1	7
	<u>£7,311</u>	<u>3</u>	<u>4</u>	<u>221</u>	<u>3</u>	<u>9</u>	<u>7,532</u>	<u>7</u>	<u>1</u>
							£7,532	7	1

We have examined the above Accounts with the Books and Vouchers, and we find the same correct.

28th January, 1882.

JOHN LEE,
R. A. ASPINALL, } Auditors.
JAS. F. WEST,

GENERAL REVENUE ACCOUNT, 31ST DECEMBER, 1881.

Dr.	£	s. d.
To Balance carried forward	1,721	4 1
	£1,721	4 1

CR.

By Balance of Revenue Account brought forward 1st January, 1881 1,278 11 6
„ Annual Revenue Account—Balance for the year 1881..... 442 12 7

£1,721 4 1

We have examined the above Accounts with the Books and Vouchers, and we find the same correct.

28th January, 1882.

JOHN LEE,
R. A. ASPINALL, } Auditors.
JAS. F. WEST,

DRESSING ROCK PLANTS.

THE present month is a very good time to give a little attention to hardy ferneries, alpine plants, and perennial plants generally. Some rock gardens are so closely planted with bulbs and various other evergreen perennials, that it is impossible to hoe or dig between them, and they can only be cleaned by hand-weeding. All such should now be examined, cutting off dead Fern fronds and leaves. A small handfork is useful in loosening the ground where it is hard. After all has been well cleaned give a top-dressing of leaf soil and decayed manure mixed, such as may be had from an old Cucumber bed, and if two years old it is in good condition. I find the best plan is to chop it roughly with a spade, and a man with a half-inch-mesh sieve can then scatter it better among the stones and crevices about half an inch in depth. The siftings may be thrown into another barrow to be brought away. This little will improve the appearance of a rock garden, and, what is more, will prove of great benefit to its occupants, especially old clumps of Primroses, Hepaticas, and Hellebores. The rain will wash any particles of soil off that may have lodged on the leaves, and the nutriment washed in will stimulate and encourage healthy growth.

The autumn and winter having being unusually mild, many plants are flowering, and among them are the following—Erica carnea, Primroses and Polyanthus, Winter Aconite and Snowdrops, Malcolmia maritima, Crocus, Scilla siberica, Hepaticas, Anemone hortensis in variety, Violas, Wallflowers, Myosotis, Vinca minor, Narcissus, N. Bulbocodium and Leucojum vernum showing flower; Helleborus niger and Helleborus atrorubens, which lasts from November to March, and has from four to eight flowers on a stalk.—A. H., Peterborough.

GARDENS NEAR TOWNS.

“SOUTH KENSINGTON” appears to have missed the object of my remarks, hence he heads his article “Trees and Shrubs for Towns.” Perhaps I can best illustrate my meaning by what I saw at a watering place, and see also at what I may term the pleasure end of most towns. Villas are wanted. They seem to grow up like Mushrooms. They vary in value to suit the pockets of intending purchasers or tenants. In one respect they do not vary; the nearest nurseryman having a large supply of a certain class of evergreens which it suits him to supply, the gardens smaller or larger are supplied as if by pattern. Narrow strips of soil are left at the edges, and so the gardens are repeated and reproduced *ad nauseam*. I grant that such a plan turns at once a bit of building ground into a clothed plot, and that a garden is made at a jump. But what I object to is endless repetition, and also that the suburban dweller has no English shrub or tree near him, and the true country is not brought before his eyes. All this is produced because people are apt to run in a groove, and so they become the slaves of the nurseryman whose stock of certain class of shrubs is most abundant.

What “SOUTH KENSINGTON” says of clergymen's gardens is out of the question, they were not referred to. So also planting Elms in smoky towns are, of course, not approved; but I hold still that there is a point of value in this idea I met with, and that we might have more variety in suburban gardens.

There must be a limit, of course, as to what are native trees and what are not. Thus, if we went only far enough back in history we should find very few aboriginal trees and shrubs. But let us have more variety, not one villa garden just like its fellow because stocked from the same nursery—my eyes are wearied with such a Dutch-garden-like uniformity. Nothing in extremes is well, but a mingling of varieties breaks a uniformity which is painful.—WILTSHIRE RECTOR.

POTATOES.—For twelve years in succession (one year excepted) I have grown Potatoes on the same piece of ground. The soil thirty years ago, I am told, was rather stiff and heavy. Every year or two since that time it has been heavily manured with leaves partly decayed, and Potatoes have been the principal crop up to the present time. Another garden dressed with farmyard manure and leaves from forcing

pits, in which most vegetables grow well, does not produce Potatoes if planted occasionally with them nearly so good as the former. The tubers from the first-named are better in quality, and suffer much less from disease.—F. J.

SAGE CULTURE.

It is not by any means unusual to find in gardens the person responsible for its management depending for a constant supply of this indispensable herb on a few old plants, growing possibly in some corner. It would be rather a difficult matter to say how many thousands of plants have been lost during the past two or three severe winters under this system of culture. What is more provoking or more likely to disturb a gardener's equanimity than a peremptory order from the kitchen for a good supply of something of which he happens to be entirely without, or, it may be, has a quantity not half sufficient for the purpose? It frequently happens that when we have almost "run out" of anything special, the demand for it has an unpleasant way of increasing, then come the vexation and disappointment. There is no reason, however, that Sage should be scarce, and the sooner those who rely for a supply on a few old plants resort to a different practice the better it will be. Unquestionably the best plan is that of sowing seed in heat early in the year, the young plants obtained to be pricked-out in boxes when large enough, and after being duly hardened-off plant out in beds or borders from 12 to 15 inches apart each way early in April. To obtain the best results plenty of manure is essential, and there is nothing better than half-decayed horse droppings, dig in a dressing of about 2 inches, and on light porous soil tread it down moderately firm previous to planting, supplying water when necessary. Destroy all weeds, and in due course the crop will be all that can be desired—that is to say, sufficient to justify a repetition of the same system of culture. In August the crop should be cut and dried in the sun, afterwards stored away in some dry place, where it may remain and be used as required. By adopting the above plan a good plant is always obtainable by August, and if grown on a large scale for market or otherwise, the crop will be such as to call into requisition the scythe or the sickle for harvesting.—ET CÆTERA.



At the Annual General Meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, the Right Hon. Lord Aberdare in the chair, the following candidates were elected Fellows of the Society—viz., Matthew Baines, M.D., Mrs. Bateman, Mrs. F. A. Bosanquet, Major-General Lord Chelmsford, Armar Corry, Mrs. Armar Corry, Charles Corser, Ralph Disraeli, Mrs. Nugent-Dunbar, R. A. Egerton, Frank A. Fawkes, George Fellows, Mrs. Edmund S. Hett, Charles A. James, Rev. Edward H. Kittoe, George Charles Knight, Rev. H. W. Sneyd Kynnersley, Mrs. Langenbach, Mrs. Little, Miss Julia Maxwell, Mrs. F. Montgomerie, Mark Morton, Thomas Phelps, Capt. Rogers, Mrs. L. R. Roupell, Thomas A. Dorien-Smith, Miss Frances P. Somers Cocks, William Hardinge Tylor, M. Maurice Vilmorin, Lieut.-General E. Wray, C.B.

— LAST Tuesday in one of the florists' shops in the Central Avenue, Covent Garden Market, we noticed some remarkably handsome FLORAL VALENTINES, very attractive novelties. Neat boxes lined with satin, each contained an elegant bouquet of choice flowers, including Rose buds, Violets, Lilies of the Valley, Orchids, especially *Cœlogyne cristata*, and others very tastefully arranged. The ends were secured in a diminutive basket at the lower part of each box, but we doubt if such would travel through the post very safely.

— A CORRESPONDENT sends the following relative to TESTING ONION SEED—"Have a small saucepan of water boiling, then take a pinch of seed from the sample to be sown, tie it in a piece

of flannel and immerse in the boiling water. In from twenty minutes to half an hour it will be seen what portion of the seed is good by the small white thread-like roots growing and protruding. If at the rate of 75 to 90 per cent. shows such the seed is good, and will indicate to those who have to sow how thick it may be placed in the drills." This method is very simple, and may be very readily tested by anyone.

— WE regret to announce the death of Mr. WILLIAM HURST, the principal of the great seed house of Hurst & Son of Houndsditch, London, on the 11th inst., at 16, Kensington Gore, S.W., at the age of fifty-one. Mr. Hurst was the elder and surviving son of the late Mr. William Hurst, who founded the house along with the late Mr. McMullen, so long known under the style of Hurst & McMullen. Mr. William Hurst, jun., was a clever man of business, and was a strenuous supporter of the Gardeners' Royal Benevolent Institution, of which he was for many years a Trustee.

— WE have also to record the death of M. J. DECAISNE, Director of the Muséum d'Histoire Naturelle, Paris. M. Decaisne, who, we believe, was a Belgian, is said to have entered the Jardin des Plantes at Paris as a young man at the age of eighteen, and by industry and good intellectual attainments to have raised himself to the highest post in the establishment. As a botanist M. Decaisne has done much good work, and he has also contributed very extensively to the science and practice of horticulture. As a pomologist M. Decaisne also distinguished himself by the manner in which he produced that splendid work "Le Jardin Fruitier du Muséum." M. Decaisne died unmarried, but he has, nevertheless, left many attached friends behind him to mourn his loss.

— ONE of the houses in the Royal Horticultural Society's Gardens at Chiswick now contains some very promising CINE- RARIAS, dwarf and compact in habit, with large healthy leaves and abundance of flowers showing. Some of these are already expanded, and indicate a strain of seed of considerable merit, which we understand has been obtained from one of the continental seedsmen. There is a little looseness in a few, which, perhaps, is objectionable, but the colours are rich, the outline good, and the florets of good substance. The selfs are particularly noteworthy for the depth of their colours and symmetrical form.

— LARGE specimen Orchids are now in much request among many growers of these plants, especially for exhibition, and some of extraordinary size are occasionally seen at shows. One, however, of more than usual dimensions was recently sold at Mr. Stevens's auction rooms, Covent Garden Market—namely, an example of *Cœlogyne cristata*, exceeding a yard in diameter, and comprising a very large number of pseudo-bulbs. The appearance of such a specimen when bearing its beautiful flowers can readily be imagined.

— AT the next meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 15th inst., at 7 P.M., the following papers will be read—"Notes on Experiments on the Distribution of Pressure upon Flat Surfaces Perpendicularly Exposed to the Wind," by C. E. Burton, B.A., F.R.A.S., and R. H. Curtis, F.M.S. "The Principle of New Zealand Weather Forecasts," by Commander R. A. Edwin, R.N., F.M.S. The electrical thermometer, lent by Messrs. Siemens Bros., for observing the temperature of the air at the summit of Boston church tower, will also be exhibited.

— "WILTSHIRE RECTOR" writes:—"As to having many VARIETIES OF APPLES, a large nurseryman in the neighbouring city of Bath told me last autumn he intended to get rid of all but

some twenty or thirty sorts, keeping none others, but putting the rest up for auction. This is a step in the right direction."

— We are informed that the LEEK ROSE SOCIETY will hold their annual Exhibition on Tuesday, July the 18th. The schedule enumerates ten classes for Roses, the National Rose Society offering silver medals in two classes, and Messrs. Cranston of Hereford contribute two prizes for twelve blooms of any Hybrid Perpetual Rose. Five classes are also provided for stove and greenhouse plants, two for Pansies, and one for Pinks. The Hon. Secretary, Mr. H. Gibson, gives a special prize, together with the National Rose Society's bronze medal, for the best Hybrid Perpetual Rose in the Show.

— It having been intimated to Messrs. James Veitch & Sons from various sources that the Index to their MANUAL OF THE CONIFERÆ is not sufficiently elaborated for purposes of reference, they have compiled a more complete one, a copy of which they will gladly send to all applicants for incorporating with the book. This revised index is now before us, and it will prove a valuable addition to an excellent work.

— We recently observed in Mr. Gower's nursery at Tooting a good stock of ANTHURIUM SCHERTZERIANUM ALBUM, the white variety of this well-known and much-valued plant. The specimens were of moderate size, but all as healthy as could be desired. This variety is not by any means so well known as it deserves, for though it cannot claim equal rank with the parent form as a decorative plant, yet it is an admirable companion for that, and when well grown produces its spathes freely.

— AN unpretentious but useful little work is now before us, entitled "COMPOSTS FOR THE USE OF GARDENERS AND AMATEURS," and is published by D. Hall, Shifnal, Salop. Under the generic names of over three hundred stove and greenhouse plants, Ferns, and Orchids, it gives brief particulars of the soil or compost required, with the house in which the plants are usually grown. As far as we have examined it the instructions are reliable, though conveyed in very few words, the only disadvantage being that species in some of the genera enumerated require widely different treatment both in soil and temperature.

— MR. IGGULDEN writes—"The printers spoilt my notes on NANTES HORN CARROT, on page 109. There is no necessity "to sow on warm borders for main crop." It should have been sowing on warm borders, or for the main crop, &c. Or to state its merits more fully, it is best for forcing, best for sowing on warm borders to form a succession, best for the main crop, and best for mid-summer sowing for pulling throughout the winter."

— ONE of the most striking shrubs out of doors at the present season is GARRYA ELLIPTICA, though it possesses no brightness of colour to recommend it to notice. Its long pendulous catkins are borne in such large numbers that the plant appears to be streaming with dull grey flowers from its highest branch to the ground. It is compact in habit, and forms a neat specimen either in a shrubbery or singly on a lawn. Being an evergreen it has not the bare appearance that some catkin-bearing trees and shrubs have.

— IN the conservatory at Bedford Hill House, Balham, the seat of J. Brand, Esq., a plant of HIBBERTIA DENTATA is flowering very freely, trained up one of the columns. The chief defect that can be urged against this plant is the short duration of the flowers, but there is some compensation for this in the fact that they are produced in succession over a considerable period. Their very bright yellow colour, too, contrasts most strikingly with the dark green or brownish foliage. It is very easily grown, but requires some attention to keep it free from insects, especially scale and mealy bug; but with this, as with many other climbers in the same house, Mr. Rapley succeeds very well. The Calceolarias,

for which he is so justly noted, are making good progress, and bid fair to gain their cultivator still further honours during the ensuing season.

— We have the pleasure to announce, that the Committee of the Gardeners' Royal Benevolent Institution have received from the ARTHUR VEITCH MEMORIAL COMMITTEE, the sum of £800 14s. 2d., being the amount collected to perpetuate the memory of that gentleman. This amount will, by the express wish of the Memorial Committee, be placed to the account of the Pension Augmentation Fund.

— SELDOM is there seen at this time of year a good display of ORCHIDS IN A CONSERVATORY, but that at Furzedown, Tooting, the seat of C. Seely, Esq., M.P., is a notable instance of how effectively and safely such plants can be employed where the houses are judiciously constructed and care is exercised to exclude draughts of cold air. Around handsome Tree Ferns of various heights are groups of choice Orchids in excellent health and flowering most profusely. The lovely Phalænopsis Schilleriana is numerously represented, with several Dendrobiums and Cœlogyne cristata in strong force. Several specimens of the handsome Dendrobium Wardianum are remarkably fine, with growths bearing over two dozen large flowers each. These in combination with small Ferns, many choice fine-foliage plants, Azaleas, Cyclamens, and numerous other flowering plants, produce an effect that is highly creditable to the gardener, Mr. Laing, both as regards the taste exercised in the arrangement and the clean healthy condition of the plants.

— AN ESSEX MAN writes—"I read with much pleasure the remarks of Mr. J. Muir respecting ERANTHEMUM PULCHELLUM in a recent issue of the Journal. I have long grown the plant, and appreciate it quite as highly as he does. One disadvantage I find it has—namely, that as the plant becomes of good size there is a tendency to what gardeners forcibly but rather inelegantly express as "legginess." The stems are rather wide-spreading, and are liable to become bare at the lower portion. This, however, can be to some extent remedied by judicious pruning, but I prefer raising young plants from cuttings, and as they flower freely in 48 or 32-size pots this is preferable. After flowering the plants are induced to grow freely, the shoots produced in the axils of the leaves being taken as cuttings and inserted in light soil in an ordinary propagating frame, and afterwards grown in a light position."

— A YORKSHIRE correspondent sends the following note respecting EARLY SPRING FLOWERS—"Eranthis hyemalis has been in bloom since Christmas and is still very beautiful. Galanthus nivalis and plicatus were early this year, having been in bloom for weeks past. Cowslips we have not had so early before, also the common Primrose, which is in full beauty. Primula denticulata and its varieties are charming spring plants. Some are now in bloom inside and are most beautiful; we shall soon have them in flower in the border. A splendid sight just now is Crocus Sieberi, one of Nature's gems, flowering so freely in the winter. Gagca lutea is coming into bloom. Primula marginata is just expanding its blooms in the border. Anemone stellata is beautiful with its beautiful crimson-scarlet flowers. Arabis albidia and A. purpurea are also flowering. Wallflowers, double and single, are rewarding us for our care in the past with their fragrant flowers. When our Hyacinths had perfected their growth after forcing last spring we planted them out by the walk sides and in the grass in the shrubbery, and now they are flowering without any protection. Viola odorata, Hepaticas, Crocuses, Myosotis dissitiflora, and Pansies are very beautiful. Carter's Cloth of Gold Primrose is beautiful in pots inside."

— REFERRING to PLANT-COLLECTING a writer in "The

Gardener" gives the following note—"The greatest destructives of Orchids and rare wild plants of all kinds in many districts are forest fires, which prevail during dry seasons. These sweep everything before them, and do more damage in a few days than all the collectors in Europe could do in their lifetime. Nothing surprises a young collector more than his own utter smallness for good or evil when brought face to face with the mountain ranges of the tropics. A collector on the Andes or the Himalayas is a great deal smaller and more helpless in degree than the smallest of ants crawling about the largest of haystacks! You may sit and look at a dark gully up a mountain side when twenty miles away, and its whole area seems to you about as big as a ten acre field. After three or four days of walking, or perhaps of riding on a buffalo or a mule, you find yourself on the spot, and the 'ten acre field' has seemingly increased its dimensions; and to thoroughly explore it would give four or five collectors six months' constant work. This, it must be remembered, is only a mere speck on a mountain range. Those who have made a walking tour amongst our native mountains may form a slight idea of what collecting is, and of man's power to extirpate anything tolerably abundant on their sides. To the physical difficulties of the thing must be added Nature's own life's work, which is specially carried on in order to frustrate extirpation or annihilation of all kinds; hence all those shifts and appliances to insure due cross-fertilisation, long ago pointed out by the 'Father of Evolution.'"

STENORRHYNCHUS SPECIOSA.

TERRESTRIAL Orchids, like many other plants, are greatly neglected, or, perhaps, their cultivation is not thoroughly understood. Everyone is aware of the beauty of the epiphytal Orchids, and the ease with which many of them are cultivated. There are many terrestrial species which might be more extensively grown, for some are very valuable and scarce. I think if collectors were to pay a little more attention to terrestrial species our Orchid collections would soon reap the benefit of their labours. Many of the terrestrial species of Orchids are deciduous, and if not well known by collectors they may be easily passed unobserved; but if once seen in flower I am convinced more attention would be paid to them by cultivators and collectors. Take, for instance, *Spathoglottis Lobbii*, one of the prettiest and most handsome Orchids, with flowers of a bright canary yellow. Compare that with some of the dull *Oncidiums* and others that are so much admired, and I feel convinced it would be more generally grown. One of the evergreen kinds which especially deserves attention is *Stenorhynchus speciosa*, a valuable plant well worth the attention of cultivators generally, as when not in flower it is handsome, for the foliage has a peculiarly satiny hue. The flowers are produced on spikes nearly a foot long, erect, and are light rose colour. The individual flowers are not unlike *Adiantum aurantiaca* in shape, but the sepals are shorter, the spikes stouter and more densely clothed with flowers. It grows very freely in a cool moist corner of the intermediate house, and should be liberally supplied with water all the year round. A mixture of good fibry loam, a little leaf soil, and sand suits it well, allowing the thick fleshy roots plenty of room. It flowers in midwinter, and would prove very useful for indoor decoration.—W. K.

RAISING EARLY VEGETABLES.

VEGETABLE seeds have now been received by many cultivators whose duty it will be to make the most of them, and with this object we must endeavour to produce early crops. I can say from experience that of all our vegetable supplies none give more satisfaction than those we forward by a few extra contrivances in spring. We commence sending two large hampers a week to London about the beginning of April, and, these being much appreciated, we are encouraged to still increase the supply. There is nothing like employers showing their appreciation of their gardeners' exertions; this will often accomplish more than extra money.

In raising early vegetables a good hotbed and frame, or two or three of both, are of the greatest importance. For many kinds they are more useful than glass houses, and the beds may easily be formed of old leaves from trees, vegetable leaves, and stumps and littery manure. The more manure is

used the greater will the heat be at first, and the sooner will it decline. Tree leaves hold heat longest, and most of them should be used where they can be had plentifully. Two cartloads of leaves, one of manure, and the same quantity of other refuse, will make a fine bed for any ordinary two-light frame. Where time and labour will allow, it is a good plan to throw the whole into a heap and allow it to remain for several days, when it may be turned and formed into a bed. In any case the firmer the material is trodden down the more steady and lasting will the heat remain, and this is important in late cold springs. Some may make the bed higher at the back than the front; others may have it the same height all the way round; and both plans will be found to answer unless the position is very shady, when the former will be preferable. When the material is fresh the heat rises quickly, and the bed may be finished and the seeds sown almost as soon as it is formed. When the bed has been made the frame should be placed in its position, and the soil in which the seeds are to be sown should be placed in. Some vegetables require a deeper soil than others, but from 8 to 12 inches is a good depth of surface soil for most of the crops I am about to recommend.

First, among these are early Carrots, which are so much valued in April and May. A moderately rich soil with a little soot mixed through it to kill the grubs suits Carrots well. The French Horn is the best variety for frames, sowing the seed broadcast. If sown at once on a gentle hotbed delicious small roots will be obtained in eight, ten, or twelve weeks. The soil should be firm, and air must be admitted on all favourable occasions. When the plants have well advanced the smallest should be drawn out, as they do no good when crowded.

Early Turnips may be grown in the same way. Suttons' Forcing is a good variety. The Turnips are more liable to run to seed prematurely than the Carrots; but this is not always the case, and serviceable roots are usually formed, especially if they are not hastened too much by being kept very close or dry. A very thin sprinkling of Radish seed may be thrown amongst these seeds where beds are scarce, but when a frame can be devoted to them they are better.

Dwarf Peas and Dwarf Kidney Beans may also be forwarded greatly on these hotbeds, but the soil must be both good and firm. They should, however, be sown chiefly with the intention of giving them a good start, removing the lights later on.

The culture of the Potato on dung beds is so well known that nothing need be said of it here, but the plan of forwarding these in pots and boxes, which I recommended some weeks since in these pages, is worth more extensive trial than it has yet had by all who value a good dish of early Potatoes. Beetroot will not bear forcing. With plenty of frames Spinach may be had early in large quantities, and most acceptable it is in April and May, and indeed at all times. The most profitable way of sowing it in frames is broadcast.

There are other crops of equal importance to the preceding which come under the same treatment and must not be omitted. A pinch of Celery seed should be sown early in all gardens, but as hundreds of plants might be had from a space no larger than a page of this Journal, a frameful need not be sown at once. In fact, the best way is to sow a little in a 6-inch pot and prick out the plants in the hotbed as soon as they are large enough. Early Cauliflowers, Cabbages, Brussels Sprouts, and Lettuces may be raised with much advantage in this way. At the present time I have 6-inch potfuls of all these just ready for dibbling in the hotbeds, and in a few weeks hence these will be fine healthy plants, which will be gradually hardened and be finally planted out in March or April according to the weather; at the same time a few will be left in the frames to grow and come in before those in the open. When the plants are taken from the pots and placed in the beds a patch of seed of the same kind will be sown in the corner of each frame, and the plants from this will be pricked out, coming in some time before those from seed sown out of doors.

To be successful in raising young vegetables they should never be subjected to a sudden excess of heat, and extremes of cold must also be avoided. When severe weather occurs the lights should never be kept quite close for any great length of time, especially when the plants are growing rapidly, or they will soon become weakly.

As regards the soil most suitable for the young plants, light sandy compost must be avoided. They might grow well in it for a time, but when transplanted scarcely any of it can be moved with them, and this is a great disadvantage. Securing a good ball with each plant is important, and for this reason the plants must not be closer together than 3 inches or so, and the soil should be of a character that will adhere together when moist.

I have sometimes covered the surface of a bed with turves some 2 or 3 inches thick turned upside down, and into these turves the plants were dibbled a few inches apart. At planting-out time a sharp knife was run between the rows, leaving each plant with a firm ball of turf. At the present time there are some loamy fields outside our garden where the moles are throwing up fine yellow mounds, and these are being wheeled in and mixed with

old Mushroom bed material for the reception of our young vegetables.—A KITCHEN GARDENER.

PEAR NOUVEAU POITEAU.

ALTHOUGH not one of the most symmetrical and handsome of Pears, yet the variety now figured is one of the largest, and not

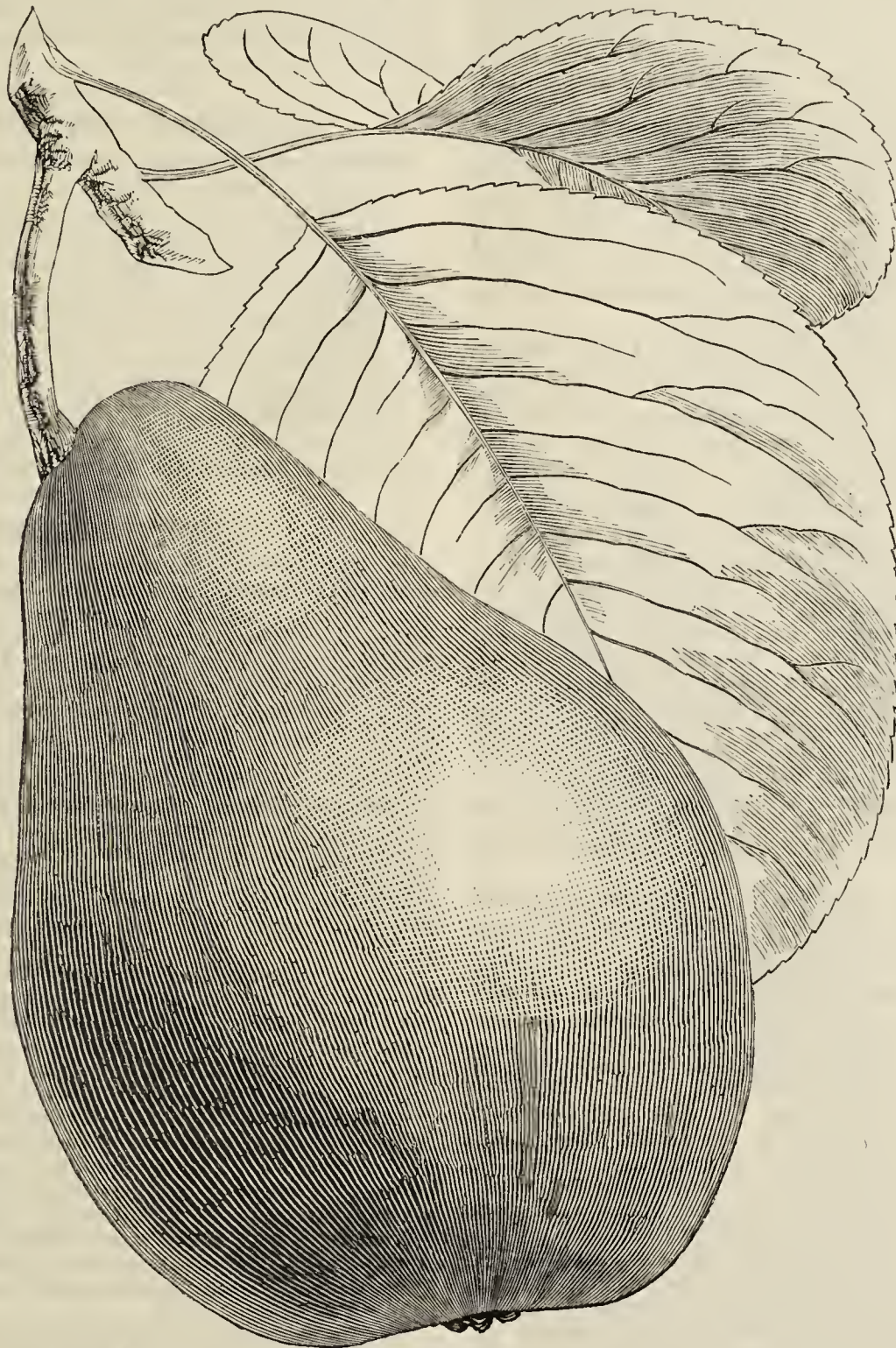


Fig. 28.—NOUVEAU POITEAU PEAR.

unfrequently one of the best of its season—late autumn. It is not by any means largely grown, possibly because when seen on the exhibition table it is not so attractive as some others. When, however, the fruit is in good condition it is usually "much better than it looks," which is more than can be said of many fruits. The tree grows and bears freely, but this Pear is better adapted to the south than the north, and in all cold districts it deserves the aid of a wall. The following is the description and origin of Nouveau Poiteau—

Fruit very large; obtuse-ovate or pyramidal. Skin greenish yellow or pale yellow, mottled and streaked with pale brown russet. Eye closed, placed in a slight depression. Stalk 1 to 1½ inch long, obliquely inserted in a small cavity. Flesh fine-grained, buttery, melting, and very juicy, rich, sugary, and highly

perfumed. A first-rate Pear; ripe during November, but keeps only a short time. It is a seedling of Van Mons, which first fruited in 1843, and was named in honour of M. Poiteau of Paris, Director of the Royal Gardens, and who was an eminent pomologist.

EXPERIMENTS WITH PLANT LABELS.

In that interesting little book, "Notes and Thoughts on Gardens and Woodlands," by the late Miss Hope of Wardie, at page 163 are these words, "A cheap tally that will not decay or be lost has yet to be invented." Most hardy-plant growers will agree with this. Having occasion to use some thousands of labels in my field and wood garden, and not having found one which answered all requirements, I suggested to the Secretary of the

Society of Arts to offer a prize to be provided by me. His Council agreed last year to offer a medal and a prize of £5. The reason why the Council of the Royal Horticultural Society was not applied to in preference is that horticulturists had already tried their hands on the subject, while to the large body of members of the Society of Arts, many of them with mechanical and inventive power, it was new ground.

Numerous labels were sent in competition—some quite new, to me at least, others of different degrees of merit, others showing great ingenuity but equal ignorance of what labels for hardy plants are exposed to when in use. There was none which the Committee, composed of some of the best known hardy-plant growers in the country, considered sufficiently to fulfil the conditions to justify their awarding the medal or prize. The medal and prize have been again offered for labels sent in before May, 1882. The labels sent in last year have most of them been exhibited in the arcade of the Royal Horticultural Society. We have some zinc labels made by Yates, I believe, on Rose trees, which are perfectly legible after fifteen years' exposure, while some in the cool Orchid house have become indistinct in less than two years. We have tried heating the labels after writing, the better to fix the ink, and have varnished them afterwards, but the writing still is not as clear as could be wished.

One of the most serviceable upright zinc labels I have seen was at Mr. P. Neill Fraser's near Edinburgh. He uses them extensively. They are made of stout zinc 9 inches long and three-quarters wide; they stand well up from the ground, and are not pushed out by frost: they were not exhibited. Among the best which were shown were ordinary zinc labels hung on galvanised iron stout wire. Mr. Wolley Dod gave me an ingenious label which I have tried with success, and which is useful when you have Hazel in the hedges. A stick is cut into about 1-foot lengths, and a slice at the top taken off sufficiently long for the writing. Mr. Ewbank has improved on Mr. Wilson Saunders' good old label. He uses a small wooden label with two galvanised iron supporters. The label is painted white, and when used a thin coating of black paint is put on. The writing is done with a pointed stick; this, by removing the black, shows the letters in white. Col. Trevor Clarke has a small wooden label stuck into an Elder stick to raise it up, the point of the label sticking in the pithy centre of the Elder. There appear to be a number of serviceable labels for permanent use; but what is required in addition is a cheap rough-and-ready label to be used when putting in a number of plants with little time to do it in, and this is, I think, to be sought in some modification of the present wood labels.

Among the wooden labels exhibited which were new to me were teakwood labels from Mr. Johnston of Renfrew, and holly and boxwood labels from Messrs. Wolstenholme & Son of Manchester. These two last were cheap and found favour with the Committee as far as appearance went. Mr. Joad, whose death we have lately had to deplore, was much taken with them, and I know that many orders have been sent to the manufacturers. I have been trying these labels carefully in frames, and have exposed them to the severest test in a cool damp Orchid house. The holly wood is more affected by damp than the box, soon becoming mouldy; the box is discoloured after a longer time. Remembering that the Committee in their report had suggested that some preparation should be used to make labels waterproof, the words of the report were these—"Wood is probably the cheapest and best material for cheap labels. It is at present liable to the objection that the part in the ground rots and the writing on the label becomes illegible. If by some process, such as perfect kyanising or treatment with paraffin, these objections could be removed, an excellent cheap label would be the result." In accordance with this suggestion I induced some friends to dip for me in their laboratory some of the holly and boxwood labels in hot paraffin. I should say, as it has been confused with paraffin oil, that paraffin is a hard white substance, which, as its name denotes, does not change, and can have no injurious action on plants. The result was promising, but the small quantity of paraffin absorbed showed that the labels could not have been dry. Some thoroughly dried boxwood labels have since been soaked for forty-eight hours in hot paraffin, of which they absorbed about 12 per cent. These have so far stood the severest tests in the cool Orchid house and have the merit of not requiring any paint, the writing both in ink and gardener's pencil being easy and showing clearly. Having plenty of gardening work I cannot undertake the label experiments, but strongly recommend label manufacturers to take them up. Paraffin is not now an expensive material. As it is not always easily procurable, I have ascertained that Price's Patent Candle Company will supply it to label makers of sufficiently hard quality at 5d. a pound. I send specimens of

labels—holly wood and box as supplied by the makers, holly wood exposed in damp Orchid house unprepared, box wood exposed after being paraffined. The subject excites interest abroad as well as at home. I have received a paper by M. Ch. Joly of Paris on "Les Etiquettes Horticoles," which carefully sums up the merits and demerits of the labels now in use.—G. F. WILSON.

[The writing on the unprepared holly wood label is practically illegible; that on the paraffined boxwood label is quite clear, and it is highly desirable the suggested experiments be made. A simple, cheap, and durable label is a great desideratum, and Mr. Wilson merits the thanks of horticulturists for the efforts he is making to produce it.—ED.]

ROSE SHOW FIXTURES FOR 1882.

THE following dates have already been fixed—

National Rose Society, Bath	June 28th.
Farnham	June 29th.
Crystal Palace	July 1st.
Reigate	July 1st.
National Rose Society at South Kensington	July 4th.
Canterbury	July 6th.
Brockham	July 6th.
Alexandra Palace	July 8th.
Cardiff	July 12th.
Birkenhead	July 15th.
Leek	July 18th.
Helensburgh	July 20th.
National Rose Society, Darlington	July 21st.

The dates for Maidstone, Eltham, Horsham, Hereford, Oxford, Ludlow, and East Anglian not yet arranged.—D., Deal.

POTTING MATERIAL.

IN the following notes it is not intended to deal with the orthodox part of the subject, as that has been amply discussed, but to give a few observations in an economic point of view. The first heresy is to recommend—but only to those who cannot readily command ample supplies—employing a good part of old potting soil. In our district there is plenty of some kinds of potting material, especially sphagnum and peat. Loam, too, is obtainable, but it is merely decayed quick grass, though very suitable for many plants. Leaf soil can also be occasionally procured. But in several cases the old soil is used again, and with benefit too. Recently in repotting some plants the first taken were *Dracænas*, and to these fresh soil was given. Next some *Pandanus Vcitchii*, *Cyperus alternifolius variegatus*, and *Curculigo recurvata* were repotted. As these plants are better grown in somewhat poor soil, that shaken from the *Dracænas* mixed with a little fresh soil was employed for them. It is not always good practice to use the best soil.

Although in a peat district, we are like sailors whose water tanks have become dry. It is plentiful enough, but almost useless for pot plants, although very fair for *Rhododendrons*. Suitable material for hardwood plants can only be obtained at a distance of nearly ten miles, so it is somewhat precious. Leaf soil is also rather scarce. For Ferns I find the rather decayed sphagnum from our Orchids when dried, rubbed fine, mixed with loam and sand, a very good substitute for peat and leaf soil. It is more porous than peat, and it maintains its porosity longer, while it induces the plants to root very freely. Indeed for large plants I do not hesitate to use a good proportion of fresh sphagnum with the loam. Some time ago a few *Marantas* were potted in the half-decayed sphagnum from the Orchids, and they succeeded better than in any other soil; liquid manure is, however, rather liberally supplied to all those plants.

Peat or leaf soil may be altogether dispensed with in the cultivation of Ferns. For small plants to furnish fronds for cutting or plants for decorative purposes loam is really very good, with plenty of sand to make it porous, and careful drainage. Indeed, heresy though it be, the mixtures of peat and loam usually recommended are not the best. For strong-rooting kinds good loam and sand alone is perhaps the best soil; for delicate-rooting kinds a proportion of partially decayed sphagnum may be added with benefit, and will generally be found better than peat.

It is usually recommended to mix loam with decayed manure for a large number of plants. Manure in decaying loses its best properties and becomes poor, especially if not protected from the rain. The manure should always be mixed in perfectly fresh, but in order to have such a mixture in condition for using it must be prepared six or eight months before, and the heap so prepared should be protected. It must be remembered that good loam is better prepared for holding manurial matters than is the manure. Decayed straw or animal droppings hold ammonia and other valuable matters much less securely than clay does, which is always

present in loam. When fresh manure is mixed with loam the chief qualities are absorbed and fixed. It will thus be seen that keeping the loam in one heap and the manure in another till potting time, and then mixing, is not at all a good plan.

It is best to use horse or cow droppings free from litter, for the droppings constitute by far the most valuable part of the manure. When the straw is thoroughly decayed it is as good as leaf soil. Urine should also be applied to the heap in order to furnish potash. This may be done a month or two before using it, as if freshly applied it may prove dangerous. Soil thus prepared has in itself all the elements of fertility in abundance. When used in pots, however, they disappear quickly or slowly as the soil contains little or much clay—in other words, as it is light or heavy.

Men of long experience can almost tell a good loam in the dark. At the beginning of a career when experience is most needed rules are often of great value, therefore the following are submitted as guides to young readers. The first is—In choosing a loam never be satisfied that a medium loam is a good one merely because of its texture: that is very misleading. A loam may be composed wholly or nearly so by siliceous sand and yet seem heavy because of its fineness. Turn off the upper soil and see what the subsoil is like; if it is rather clayey choose the soil, if it is merely fine sand pass it if you can do better. A mixed soil is always best. Loam from whinstone is generally first-class, and is always mixed. The felspar which it contains furnishes clay enough, the harder granite grit. Moreover, such are mostly healthy, as they generally lie high and dry. Lowland loams often contain deleterious matters, such as iron oxide, but these are often abundant in the subsoil, and absent or nearly so in the upper soil. The worst of the matter is, few of us have any choice. When lime is deficient a little should be added.

By choosing a proper loam and preparing it properly a good commencement is made. To go on well requires more attention. If it is light and will not hold manure we must begin not long after it has been taken possession of by the plant to make good the deficiency, and this eventually becomes a necessity, even in the case of the best loam. To do this liquid manure must be supplied, but as this leads into another subject I will now stop, reserving a few notes upon that until a future occasion.—SINGLE-HANDED.

A FEW DIFFICULTIES.

BORDER AURICULAS.—I grow border Auriculas largely, and have done for many years past with considerable success. My soil, which is a strongish loam, appears to suit them, and they grow luxuriantly, so much so as to require to be divided about every second year. I find no better time for this operation than immediately after flowering. I have sometimes through force of circumstances moved and divided them in the autumn, but they make no progress before winter sets in, and then they are not unfrequently forced out of the ground by frost. Even when mulched they never get so well established as to enable them to resist the rigours of the winter and the trying spring time as when they are transplanted soon after flowering. If "G. O. S.," who seems to have found a situation in which his plants succeed, will try this treatment, I anticipate that he will not be disappointed. It is desirable to wait for suitable weather for transplanting—that is, when the ground is moist and the sky clouded, or if the sun is very powerful after the work is done a little shade afforded to the plants will be of great service to them. Alpine Auriculas not infrequently fail if planted on a north border, and they nearly always do so if they are transplanted late in the season and the rainfall of the district is considerable.—S. X.

CARNATIONS DECAYING.—The "difficulty," I apprehend, of "AMATEUR" (page 110) was the result either of potting the plants too late or employing pots needlessly large, or a combination of both these evils, for evils they undoubtedly are. If your correspondent examines the roots of his plants he will probably find that they have never moved since he moved them himself; and unless Carnations are potted soon enough to produce fresh roots in the autumn, and reach the sides of the pots, the greatest possible skill and care will be needed in watering and ventilating to prevent the decay of the foliage, especially when old plants are lifted, as appears to have been the case in this instance. If such plants are removed late in the autumn and replanted in the open ground similar results follow, while those left undisturbed (except in unfavourable soil and seasons) remain healthy. Even young plants or rooted layers, if either potted too late or placed in too large pots, seldom winter satisfactorily, but "go off" in the manner indicated. If a number of small rooted layers are potted late in October, and a portion of them

are placed in 5-inch pots and another portion in 3-inch pots, both batches being placed in the same frame and having the same treatment, the plants in the smaller pots will, as a rule, be in far better condition in February than those in the larger. Seedling Carnations are usually sufficiently hardy to pass through even a severe winter with little or no injury, at least a winter following their first season of flowering; after that the growths become long and the plants more liable to sustain damage. Choice florists' varieties are more tender and must not be trusted out during the winter; and with these a safe mode of having strong healthy plants in spring is to layer the grass early in the summer and pot the layers early in the autumn, so that they produce an abundance of roots before winter. Let "AN AMATEUR" re-



Fig. 29.—*Babiana stricta*. (See page 129.)

move all the decayed foliage from the plants, dust them with sulphur if affected with mildew (which is not unlikely), stir the surface soil with a pointed stick, apply water carefully, and as the season advances fresh roots will be produced, and growth, probably healthy, will follow.—AN OLD GROWER.

MUSHROOMS DECAYING.—In reply to J. Welsford (page 110), without being fully acquainted with all the circumstances it is hard to say decidedly the causes of failure, but the following are the most probable. First, spawn strewed on the surface of the bed. This most likely will run over the manure next the soil, whilst the pieces inserted in the bed are growing inside. The surface spawn would possibly throw out a few small Mushrooms as described, and not have sufficient strength to grow to any size. The only places in the bed where good Mushrooms can be produced would be where the spawn from the lumps could come through without touching that strewed on the surface, as by the time the spawn from the pieces reached the front, that on the surface would be in a state of partial decay, and no spawn will grow through manure where spawn has been before. The second cause is probably a dry surface heat. If the house is kept at a

temperature of 60° or over, plenty of moisture is necessary. I would advise that the next bed be spawned with larger pieces, say 2 inches square, even if placed farther apart; and if the dust is used put it in pinches all together, not spreading it on the surface.—J. F. BARTER.

POMPON DAHLIAS.

At the National Dahlia Show, which is fixed for the 8th and 9th of September next at the Crystal Palace, I am glad to find classes are provided in the schedule for both Pompon and single Dahlias, as well as the ordinary Show and Fancy varieties usually seen at exhibitions. The former are not to be exhibited singly, but in bunches of eight or ten trusses, with buds and foliage as cut from the plant, and set up in ordinary Rose exhibition boxes on a moss ground. When set up in that way they have a most graceful effect, which is a pleasing contrast to the necessarily stiff and formal appearance of the Show and Fancy varieties.

It is very necessary for growers, and especially those whose space is limited, like my own, to know the best kinds to cultivate; and as I have grown about two dozen varieties of Pompoms for the past few years, I give a list of those found to give the greatest satisfaction. To make a selection from a nurseryman's catalogue often proves disappointing. The flowers of many of the so-called Pompoms are much too large, and the habit of others is faulty. I have on several occasions met with disappointment through relying on catalogue descriptions. I have found the following varieties well worth growing. Most of them are of good habit, have small neat flowers, and are very floriferous:—

Guiding Star.—This is identical with White Aster, and is decidedly the best white. The flowers are just the right size, globular, with beautifully fimbriated petals.

Little Nigger.—Very deep maroon in colour, approaching black, and charmingly small.

Sensation.—In colour this is primrose yellow; quilled, of exquisite form, and a remarkably free bloomer.

Hercules.—Flowers rosy lilac, quilled petals; of the same size and style as the preceding, to which it is an excellent companion.

Glow-worm.—Florets pale gold, tipped with red; very free and fine, but apt to show a centre.

Pure Love.—Colour soft pleasing lilac; free.

Triumph.—Flowers scarlet; very free and fine, but rather too large.

Duchess.—Violet purple, heads of globular form; would be better if not quite so large.

Nemesis.—Flowers rich maroon crimson, the centre florets tipped white.

Red Gauntlet.—Dark scarlet; a very good variety, but would be better if the flowers were a little smaller.

Northern Light.—A magnificent variety, in colour bright scarlet, but the flowers are much too large. A variety of the same colour and about half the size would be a great acquisition.

Miss Novikov.—Cream, yellow, and red; very free, small, and exceedingly pretty, nearly every flower being differently marked.

Little Dear.—Blush white, flushed and tipped with rose; of exquisite form. This is the acme of a Pompon Dahlia.

Lady Blanche.—This disappointed me much. It is described in the catalogues as a small pure white flower, resembling a Ranunculus; but my experience is that the flower is by no means small, and I have failed to see in it any similarity to a Ranunculus.

Perhaps some of your correspondents who grow more than myself of this charming autumn flower will kindly add to the foregoing list those varieties they have found to give the greatest satisfaction.—J. HENSHAW, *Harpenden*.

COCKSCOMB CULTURE.

THE *Celosia cristata* is a very old favourite annual both with the practical gardener and the amateur. In offering a few remarks on the culture of these plants let it be understood that the production of really good specimens depends more on the care and enthusiasm of the cultivator than any instructions he may receive.

Sow the seed from the 1st of February to the end of March in pots, pans, or shallow boxes; place at the bottom a layer of potsherds, and the rougher portion of the compost over the drainage, which should consist of equal parts loam and leaf soil with a little silver sand. The seed should be sown as evenly as possible, but not too thickly, covering it with about one-sixth of an inch depth of the same soil finely sifted, plunge them in a hotbed, and give a little tepid water; place a square of glass over the pans or pots, and it should not be removed till the young seedlings touch it, and at no time allow them to suffer by want of water. As soon as they are large enough to handle transfer them

singly into small pots, employing well-enriched soil—namely, light turfy loam, leaf soil, and well-decayed manure in equal parts, with sufficient sand to make the whole porous; and plunge them in a hotbed close to the glass, and shade from bright sunshine for a few days, at all times choosing a gentle warm day for potting, taking care that they do not receive a check from cold.

The plants will grow freely, and before becoming rootbound transfer them into 5-inch pots, employing the same compost as before, but adding a few finely broken oyster shells. Return them again to the hotbed and plunge them near to the glass for a time. Shade during the hottest part of the day, and close the frame or structure early in the afternoon. Be careful never to allow the soil to become too dry or failure will result. It is the chief cause of stunted plants and loss of foliage, and nothing shows defective cultivation so much as plants with long stems devoid of foliage.

Cockscombs must be encouraged to grow uninterruptedly. Immediately the 5-inch pots are filled with roots shift the plants into pots 9 or 10 inches in diameter. Be very careful about the drainage, especially with those for late blooming, as in the dull days of autumn they are apt to decay at the neck if not well drained. Place a thin layer of moss over the drainage, with a sprinkling of soot to prevent worms entering the pots. Again assign them to the hotbed; plunge them near the glass, shading in sunny weather for an hour or two during the heat of the day, for if exposed to a scorching sun immediately after potting the plants will lose their lower leaves.

When the flower-heads are showing liquid manure may be supplied. About a handful of guano to a can of four gallons of water is an excellent stimulant, but it is not advisable to supply it too freely, as the premature decay which is attributed to damp is more often the result of overfeeding with liquid manure. When fully grown the plants may be gradually hardened off and placed in a light well-ventilated structure, as a dry atmosphere is necessary, and syringe occasionally to prevent the attacks of red spider. At this stage of their culture the greatest care must be taken to guard against excessive watering. If that is kept in view they will continue to be attractive for two or three months, and there are few brighter plants than well-grown Cockscombs.

Last season I visited Mr. McLachlan, the leading grower of the Cockscomb in the west of Scotland, and gardener to Colin Caird, Esq., Dungournay, Greenock, and where I saw some superb specimens. Mr. McLachlan is thoroughly enthusiastic in their culture, and his labours are rewarded with success, for a finer collection could not be seen. The measurement of most of them over the comb was from 2 to 3 feet, and one was no less than 3 feet 2 inches, and as dwarf and compact as could be desired. I was informed that the same success has been attained for years. It is worth going a long distance to see the Cockscombs at Dungournay in their season, and the carpet hedding is also carried out with refined taste and skill.—WM. MUIR, *Bagatelle*.

THE PINK.

ORIGIN OF THE FLORISTS' VARIETY, AND PROPAGATION AT PAISLEY.

THE first double Pink we have any authentic account of was called the Hawkhead Monster (then pronounced Hacket or Hawket), and is supposed to have originated at Paisley. The late Mr. James Finlayson, florist, Seedhills, Paisley, told me he had often heard his father tell how he and one or two other Paisley florists went to see it where it was raised. This was upwards of eighty years ago. I recollect this Pink myself when quite a lad nearly seventy years since, and it was then considered a fine rarity. I consider this was the parent of almost if not all the numerous varieties now in cultivation. Old Mr. Finlayson obtained it, and was very successful in growing and propagating it; and I think I am not wrong in saying that he was, if not the raiser, at least the introducer and distributor to the floral world of the first double Pink, the "Hawkhead Monster."

The Paisley Florists' Society was in full vigour at this time, and gave great stimulus to the growth and increase of florists' flowers. The Finlaysons were most enthusiastic florists. Old Mr. Finlayson's son James devoted his whole life to the cultivation of the Auricula, Ranunculus, &c., but particularly to the cultivation and improvement of the Pink, till his decease about twenty years ago. John Waterston of Tulip fame also, about sixty or sixty-five years since, had a fine collection of Pinks. Between forty and fifty years back I had a collection of nearly sixty named varieties.

About forty or fifty years ago a number of persons in Scotland were famed for raising new and improved varieties. In Paisley we had James Finlayson, John Waterston, John Nisbet, also Mr. Cook of Dalserf; Mr. Alston, Larkhall; Mr. Paton, Kilmarnock,

and I also raised many. Paisley was at that time, as it had previously been for thirty years, and as it is at the present day, the head-quarters of this favourite flower.

It is now fully thirty years since the late Mr. Paul, afterwards of Crossflat Nursery, turned his attention to the cultivation of the Pink on an extensive scale, and, being an enthusiastic florist, he spared neither time, trouble, nor expense in collecting a stock. He was careful in discarding all inferior and indifferent sorts, and twenty years since he had, if not the largest, certainly a collection of the most choice varieties in Britain. He continued to cultivate and improve the Pink, and the varieties he sent out were not only numerous but all first-class flowers. I grew some of Mr. Paul's new sorts last year; and when I contrasted them with varieties grown a number of years back I thought he had been well repaid for the very great care and attention he had bestowed on this grand old and still favourite flower, and consider that he well deserved the thanks and now the grateful remembrance of all florists.

Appended is a list of varieties that I grew at Paisley in 1844—Flower of Dunblane (Cook), Favourite (Cook), Captain Cook (Cook), Flower of the Field (Cook), Joseph Hume (Cook), Dan O'Connell (Cook), Robert Burns (Cook), Queen Victoria (Cook), Lord Wm. Bentinck (Cook), Lady Susan Hamilton (Alston), William IV. (Forrest), Rhemus (Lemond), Mrs. Burns (Lemond), Highland Chief (Lemond), Queen Victoria (Laird), Prudence (Reinford), Mrs. Drake (Kiersley), Hannibal (Forbes), Ettrick Shepherd (Forrest), Comet (Falconer), Tasso (Low), Cheapside (Paterson), London Glory (Falconer), Rose Diana (Falconer), Conqueror (Barret), Miss Jane (Wilmer), Maggie Lauder, Hodge's Gem, Fear Nothing (Kemp), Robin Hood (Kemp), Flower of the Vale (Cook), Little Wanderer (Bosom), Catherine (Holt), Wallace of Kelly (Cook), Mrs. Wark (Wark), Prince Albert (Kemp), John Knox (Lemond), Mrs. Adam (Adam), Mrs. Ferguson (Ferguson), Princess Royal (Finlayson), True Blue (Williams), Blind Girl (Alston), Elizabeth (Bosom), Birkenshaw (Cook), Mrs. Brandling (Trotter), Mars (Hodges), Dreadnought (Falconer), Mrs. Marshall (Alston), Bloomsbury, Competitor (Thomson), Admiral Codrington (Rushton), Defiance (Cook), Peregrine Pickle (Cook), Marquis of Douglas (Low), Mrs. Campbell (Lemond).—GAVIN MCGHIE, *Beauchamp House, Paisley.*

ROYAL HORTICULTURAL SOCIETY,

FEBRUARY 14TH.

FAVOURÉD by a beautiful day, resembling May more than February, possessors of choice plants were enabled to exhibit them without risk of injury, hence charming collections of Orchids were staged by Sir Trevor Lawrence, Bart., M.P., and Messrs. Veitch and Sons, Chelsea; these with Mr. Little's Cinerarias and Primulas, Mr. Clarke's Cyclamens, and interesting contributions from Slough, Swanley, and Chiswick, produced a rich, varied, and meritorious display, which was much appreciated by the visitors, and the meeting was altogether very successful.

FRUIT COMMITTEE.—Harry Veitch, Esq., in the chair. The exhibits were few on this occasion, and the duties of the Committee were soon performed. Mr. J. Atkins, gardener to Sir R. Loyd Lindsay, M.P., Lockinge Park, Wantage, sent nine handsome bunches of Black Alicante Grapes, well coloured and in admirable condition. A bronze medal was recommended. Lady Dorothy Nevill, 45, Charles Street, Berkeley Square, sent some Oranges, for which a cultural commendation was awarded; they were neat in form and well coloured. Mr. J. F. Barter, Lancefield Street, Harrow Road, London, sent some fine samples of Mushrooms grown out of doors, some in clusters of six or more, all of excellent size and substance. Several good samples of Mushroom spawn were also sent. Mr. E. Whiteing, Pensby, Cheshire, had some seedling Potatoes not of any special merit. Mr. C. Green, gardener to Sir G. Macleay, Bart., Pendell Court, Bletchingley, sent some fruits of a Banana, a dark-fruited variety of excellent flavour. The plant is of the *Musa sapientum* habit, and has been named *M. superba*. It was believed by the Committee to be the same as that called the Red Banana at Kew. A letter of thanks was awarded. Mr. L. Killick, Maidstone, sent three dishes of Apples, for which a letter of thanks was accorded. Messrs. G. Bunyard & Co., Maidstone, sent a dish of Smart's Prince Arthur Apples in good condition; and Mr. J. Horsefield, Heytesbury, had specimens of the small yellow Apple Isle of Wight Pippin.

FLORAL COMMITTEE.—Rev. H. Harpur Crewe in the chair. The Council-room was well filled with Cyclamens, Cinerarias, Orchids, and other plants. Messrs. James Veitch & Sons, Chelsea, had an attractive group of Orchids and new plants. A Fern-leaved variety of Primula was shown named The Queen. It was remarkable for the great size of the white or blush-tinted flowers of unusual substance, the margin being fimbriated. Most of the blooms were $2\frac{1}{2}$ inches in diameter, the plants being dwarf, in 60 and small 48-size pots. Among the Orchids the elegant *Angraecum sesquipedale* with its slender racemes of small white flowers was especially notable.

Cœlogyne cristata and its variety *Lemoineana* with lemon-tinted lips; *Odontoglossum triumphans* with rich brown-barred flowers; *Dendrobium Ainsworthii* with white flowers and crimson-blotched lips were also notable. *Staphylea colchica* was represented by several specimens in small pots flowering very freely. Some *Amaryllises* were also good, especially *A. illustris*, deep scarlet, and *A. Grandeur*, bright scarlet, both of good form. Well-flowered plants of *Cyclamen persicum grandiflorum* were also staged. G. F. Wilson, Esq., Weybridge, was accorded a vote of thanks for fine spikes of *Odontoglossum Alexandræ*, one with seventeen flowers of excellent form and substance.

Mr. Spyers, gardener to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, sent a magnificent specimen of *Odontoglossum pulchellum majus*, bearing over two dozen spikes of white fragrant flowers. Plants of the curiously coloured *Odontoglossum Ruckerianum* were also exhibited. The tapering sepals and petals having a purplish tint suffusing them, and a few brownish spots. A cultural commendation was awarded for the *Odontoglossum pulchellum*, and a medal was recommended. Mr. J. Wiggins, gardener to Henry Little, Esq., Hillingdon Place, Uxbridge, contributed a fine bank of *Cinerarias*, the plants being in vigorous health, and bearing remarkably large brilliantly coloured flowers. Fine groups of *Primulus* were also contributed, the plants well flowered and of good habit. *Alba magnifica*, *Meteor*, and numerous excellent seedlings were included. A medal was recommended for these handsome groups. Mr. R. Clark, Twickenham, staged an extremely handsome collection of *Cyclamens* in vigorous health, with fine foliage, and a great abundance of large flowers. *Crimson Gem*, *Rubrum*, and a pure white variety were the leading forms, and a medal was also recommended for this contribution.

Messrs. H. Cannell & Sons, Swanley, Kent, exhibited some plants of *Cineraria eruanta* in a basket, the mass of bright rosy purple flowers being a great attraction. A cultural commendation was awarded. A plant and flowers of the *Blue Marguerite*, *Agathæa cœlestis*, were also sent, and were much admired. A vote of thanks was accorded to Messrs. Waterer & Son, Woking, for a collection of hardy *Primulas*, including a number of pretty varieties. Mr. G. Goldsmith, The Gardens, Hollenden, Tonbridge, sent a new *Iresine*, *I. formosa*, a curious form, said to be obtained from *I. Lindenii*, which it resembles in form of leaves and habit. The stems are bright red, the leaves being green, with a red midrib and yellow veins. Mr. C. Turner, Slough, had a fine basket of Tree Carnation plants. *Whipper In*, scarlet, with dark streaks; *Firefly*, rich scarlet; and *Rosy Morn*, bright pink, were the best. Mr. H. Parr, Leatherhead, sent a plant of *Abutilon Crimson King*, a variety of dwarf compact habit, with neat flowers having rounded petals of a bright rosy hue. Mr. Green was adjudged a vote of thanks for *Billbergia nutans*, a greenish-flowered species with drooping spikes. Mr. James English, Epping, exhibited two glass stands of dried flowers and Fungi, the latter being very well preserved. From the Society's gardens at Chiswick well-grown *Cinerarias* were sent; but the chief contribution from these gardens were the double *Primulas*, arranged to form a handsome bank at one end of the old Council-room. The old Double White, with several of Mr. Gilbert's varieties, were admirably represented.

First-class certificates were awarded for the following plants:—

Rhododendron Queen Victoria (Veitch).—One of the greenhouse hybrid section, with pretty buff-coloured flowers; the limb $1\frac{1}{2}$ or 2 inches in diameter, the tubes large and bright yellow. They are borne in umbels freely, the foliage and habit of the plant being good.

Cœlogyne cristata Lemoineana (Veitch).—A beautiful variety of a well-known Orchid, which differs but little from the type. The sepals and petals are pure white, the lip having a central blotch of pale lemon yellow, a delicate contrast with the deep orange crest of the species.

Cyclamen giganteum roseum compactum (Edmonds).—The chief defect in connection with the plant was the long name, which was objected to by some members of the Committee. The leaves are very large, the habit compact; flowers large, very abundant, and bright rosy pink in colour. An attractive and distinct variety.

Cyclamen giganteum compactum (Clarke).—A remarkably vigorous variety with enormous flowers $2\frac{1}{2}$ inches or more in length, white, the mouth of the tube being crimson; the petals are broad and rounded of excellent substance.

Primula Harbinger (Cannell).—A distinct Primrose with large white flowers having a rich orange-coloured eye. They are 2 inches in diameter, very freely produced. One of the most distinct forms in cultivation.

Wellingtonia gigantea pendula (W. & J. Brown, Stamford).—Remarkable chiefly for the "weeping" character of the plant, the branches being very pendulous.

Muscari lingulatum (Crewe).—A neat species with small spikes of pale blue flowers, but much less attractive than some better known species.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair.

Proliferous Acorn Cups.—Sir J. D. Hooker exhibited malformed cups of *Quercus Ilex* (the Evergreen Oak) received from Mr. F. Moore of the British Museum. The trees grew in the cliffs of Isle of Wight. Minute acorns appeared to have been produced in the axils of the bracts which formed the cups.

Carnation Disease.—Mr. W. G. Smith exhibited specimens of Carnations received from Dr. Hogg, attacked by the nematoid worm *Anguillula*. They entered the plant at the collar and penetrated

through the pith to the apex, laying their eggs within the stem, which bore a pustular appearance in consequence.

Root Malformations.—Dr. M. T. Masters showed a specimen of Elm root much distorted in places, in consequence of meeting with obstructions in growing in lias limestone rock. It was lately figured and described in the *Gardeners' Chronicle*. It was received from Mr. Ingram of Belvoir Castle.

Variation in Pear Leaf.—Mr. Blackmore exhibited a trilobed Pear leaf, such being in this case a reversion to the primitive character of the plant. Mr. Henslow remarked that in some cases the change from a simple leaf to a compound is the result of further development, as may be easily traced in Blackberries and Raspberries.

Apparent Superfætation in the Pea.—Mr. T. Laxton of Bedford forwarded a communication describing some experiments in fertilisation of the garden Pea. Taking Laxton's Prolific Longpod, he impregnated a single flower with the pollen of six varieties. The pod thus treated bore eight peas, which on germination were distinguished as A, B, &c. The peas borne by these were very various, and resembled more or less those of the pollen-bearing varieties. From these facts he concluded (1) that the pollen of more than one variety of Pea used to cross-fertilise the same flower may influence more than one ovule in the same ovary; (2) that there is some evidence of the pollen from more than one variety affecting the same ovule.

Plants, &c., Exhibited.—*Oxalis microphylla*, a small-leaved species allied to *O. corniculata*, was shown by Mr. G. F. Wilson. It appears to be often introduced with Tasmanian and other plants. *Muscari lingulatum*.—The Rev. H. H. Crewe showed a plant, one of three now in this country from Silesia.

Dried Flowers and Fungi.—Two cases containing exquisitely prepared Fungi and flowers with their natural colours were received from Mr. English of Epping, who has lately published his methods by which the natural effects can be retained. A vote of thanks was accorded to him.

Professor Church remarked on Mr. English's method of using plaster of Paris, that a similar one had long been adopted in France with the addition of sand, or rather well-dried sand with one to a half part of plaster of Paris, a small quantity of camphor being added to prevent mildew.

Sections of Flowers for Class Teaching.—A series of flowers dissected out and mounted on mica in antiseptic fluids was exhibited by Mr. Houston, Botanical Lecturer of the British Institute. The use of them was for teaching in winter. A vote of thanks was accorded to him.

Report on Winter Losses, &c., in Plants.—The Secretary, the Rev. G. Henslow, gave an account of the progress he had made in compiling statistics for a "Report on the Meteorological Phenomena of, and Consequent Injury to, Plants in Severe Winters." He had obtained particulars of several winters from A.D. 220 to 1881; but those during which destruction of and injuries to plants had been specially recorded were the following seven—1851-2, 1852-3, 1859-60, 1860-1, 1878-9, 1879-80, 1880-1. He had collected all the information he had at present been able to find with reference to those winters, and had drawn up first a short account of the principal meteorological phenomena of the year preceding each winter, as well as of the winter itself, as the behaviour of a plant under frost so much depends upon its previous conditions to each case. Such was followed by details of injuries to and losses of plants over as many places in the British Isles as possible. The importance of registering meteorological phenomena and the losses in several winters lay in the fact that the conditions of the winters respectively differed in many ways from one another. The consequence was that the immediate cause of a plant succumbing to frost was not always the same.

There would be an introduction, dealing with several interesting matters bearing on meteorology and plant injuries, and he proposed completing it with copious indices, so that no difficulty would be met in finding the exact behaviour of every plant in any country and in any winter.



KITCHEN GARDEN.

THE soil in gardens under proper cultivation for a number of years becomes workable within a short time after bad weather, but it is by no means advisable to sow seeds or plant crops unless the soil is in a suitable state. Prepare the ground for Onion, Parsnip, and early Carrot seed. These vegetables are required in quantity nearly the whole year, therefore good breadths will be required to give a supply. In sowing, drills are much to be preferred for these and all other kitchen garden crops for which they can be employed. In the case of Onions the ground should be well trodden down before the drills are made, and it should be repeated again after the seed is covered.

Carrots and Parsnips also do better when the soil is moderately firm. Onion drills should be 12 inches asunder, Parsnips 18 inches apart, and the Early Horn section of Carrots 9 to 12 inches apart. Leeks must also be sown for the general crop in drills 12 to 15 inches distance apart. Shallots, Garlic, and Potato Onions can now be planted, also Jerusalem Artichokes, in good soil and open situations. The latter deserve more attention than is frequently accorded them, allowing a distance of 2 to 3 feet between the rows and 15 to 18 inches between the sets, planting the same depth as Potatoes. Autumn-sown Onions and Lettuces which have been wintered in seed beds or elsewhere should be transplanted into rich soil. Sow successions of Peas—Criterion, Telegraph, Telephone, and Huntingdonian being suitable of the tall varieties, and Dr. Maclean and Stratagem of the medium heights, these doing best after this in the open quarters. A sowing of Broad Beans—Leviathan, Monarch Longpod, and Windsor Improved being suitable kinds—should be made. Peas which were sown in pots, &c., some time ago and have been hardened off should be planted out, the Peas in rows about 3 feet 6 inches apart, turning them out of the pots with the balls entire, and so as to form a row, drawing a little soil to them. At a foot distance on both sides of the rows some Spruce branches placed firmly in the ground will save the Peas from cutting winds, and as the weather becomes warmer and the Peas advanced in growth they should be gradually removed. Any dwarf varieties of Peas forwarded in a similar manner may be planted at the foot of south walls, and treated similarly they will afford some acceptable early dishes. Broad Beans should be placed in rows about 2 feet apart and 6 to 8 inches asunder in the row, affording them the same protection as the Peas, both being given warm south borders.

Forcing Department.—Earth up Potatoes in frames and pits as they require it, and when water is necessary apply it at the same temperature as the bed, ventilating them freely on all favourable occasions. Any pits or frames now at liberty may be planted with sets previously prepared. A slight bed of fermenting materials will be sufficient with about 6 inches depth of light rich soil. Veitch's Ashleaf is a suitable variety. Make a successional sowing of French Beans in pots, but where pits are available they will afford much better crops, the seed being sown 6 inches apart in drills 18 inches asunder. Canadian Wonder is the best variety for this purpose. The pits should be provided with hot-water pipes to secure a temperature of 55° to 65°. Frames containing Radishes and Carrots must be freely ventilated during fine weather, withdrawing the lights on fine days. Potatoes as they become ready, shifting into larger pots any that need it, placing them near the glass in a house with a temperature of 55° to 65°. Employ good loam with a fourth of well-decayed manure, and pot firmly. Maintain a good supply of Mustard and Cress by sowing as necessary, also of Mint and Tarragon by introducing to heat fresh roots in boxes or pots. Continue to maintain the supply of Asparagus, Rhubarb, and Seakale.

MUSHROOM HOUSE.

Beds prepared in autumn have borne their crops, hence it will be necessary to renew them with as little delay as possible. Where fresh materials have been prepared this may quickly be done, but otherwise the necessary materials must be collected. Horse droppings direct from the stables are unquestionably the best, along with the sweepings of a short description, which should be spread out thinly on the floor of an open shed, and turned over occasionally until a sufficient quantity is collected for making the beds. We shake out the long litter from the dunghill, and the smaller particles left after the strawy portion of the litter has been removed with a four-pronged fork is at once made into a bed and beaten as firmly as possible. Wait a few days to see whether the heat will rise above 95°, as spawning must be deferred until the heat declines to 90°. Insert the spawn under the surface in pieces about 2 inches square and 9 inches apart. In a week or ten days the bed is earthed with turfy loam 2 inches thick, well beaten down, and the surface smoothed over with the back of a spade. In about six weeks the Mushrooms appear, when the surface of the bed is kept moist by damping with tepid water from a fine-rose watering can or a syringe as necessary, being careful not to make the bed too wet. Beds so formed bear excellent

crops. The temperature of the house is kept as nearly as possible at 55°, and a moist atmosphere is secured by damping occasionally.

Vines.—Forcing may be pushed forward, but it is not advisable to effect this by a high temperature at night or in dull weather, but raise the heat to the maximum day temperature early when there is a prospect of a fine day, and close early in the afternoon with plenty of moisture in the atmosphere. Ventilation and the application of moisture must have daily attention, regulating them according to the weather. Vines in pots should never be allowed to become dry, renewing the surface dressing, and supply tepid liquid manure freely. Allow the laterals moderate extension, securing a genial atmosphere by damping suitable surfaces about the house occasionally. All inside borders must be frequently examined, and when water is necessary afford it a few degrees warmer than the temperature of the border. Cuttings or eyes of Vines may now be inserted singly in 3-inch pots, and if plunged in a bottom heat of 75° to 80° they will strike easily. When the pots are filled with roots transfer the young plants to 6 or 7-inch pots, and insure short-jointed vigorous growth by keeping the canes near the glass. Any that were not considered strong enough for forcing this season are not required for planting may be cut back to one or two eyes. Start them without bottom heat, and when the shoots have advanced repot in fresh material, and good canes may be obtained either for fruiting in pots or planting. Vines in pots for planting out this spring should be kept in a house from which frost is excluded and allowed to start naturally, not planting them out until they have made growths 2 inches long. Cut-backs or Vines raised from eyes now will be suitable for planting out permanently in June.

Figs.—Ventilation is necessary for houses of Fig trees, even if it cannot be effected without employing fire heat. Trees in pots started early in December are in active growth, and should still have the night temperature continued at 55° to 60° and 60° to 65° in the day-time, commencing to ventilate above 65°, allowing the temperature to rise to 75°, at and above which ventilate fully. Stop the shoots at the fifth or sixth leaf. Keep the bottom heat steady at 75°, affording water or liquid manure at that heat plentifully, and mulch the surface of the soil with a couple of inches depth of well-decomposed manure in a rough state. Syringing is needed morning and afternoon when the weather is favourable, but avoid a close moist atmosphere in dull weather. If a second batch of trees in pots be now started they will afford a succession. A night temperature of 50° and 55° in the day-time are sufficient to commence with, and 60° to 65° from sun heat, syringing the trees twice a day in bright weather. Bottom heat, though not so desirable as earlier in the season, is still beneficial, the heat around the pots not exceeding 70°. Trees permanently planted out in houses where the forcing commenced early in January are growing, and the shoots require pinching at the fifth joint, except extensions, which should not be stopped so long as there is space. Remove superfluous growths, and tie in the young shoots to the trellis as they advance. Syringe twice a day in favourable weather, and lose no opportunity of affording ventilation.

FLOWER GARDEN.

Any alterations necessitating the removal and relaying of turf, or transplanting deciduous trees and shrubs, should be brought to a close as soon as possible. Evergreen shrubs should not be employed to the exclusion of deciduous shrubs, as some are very effective, and in autumn enhance the beauty of shrubberies by their richly tinted foliage. If lawns are mossy, as frequently occurs on poor soils, or if the grass be thin, a good top-dressing should now be applied. Rich vegetable soil is best for this purpose, to which should be added a good proportion of soot, wood ashes, and lime, and the moss will soon disappear. Grass is much improved by frequent sweeping and rolling. Walks, too, will require the frequent use of the roller, and where the gravel is discoloured it should be turned, a sprinkling of clean gravel on the surface being well rolled down.

Borders containing herbaceous plants and bulbs must be forked neatly, as many plants are already starting. Reduce such as are too large, or divide and increase other choice and desirable kinds. Bulbs of *Liliums* may now be planted in shrubbery borders or among *Rhododendrons*, in the peat of which they thrive well. The bulbs should

be planted about 6 inches deep, and have a handful of sharp sand placed over them, which will keep them from decay. *Gladioli* for early flowering may be planted and treated similarly to the *Liliums*. Plant *Ranunculuses* and *Anemones* about 2 inches deep in rich deep soil, placing a little sand round them. Seed of *Anemones* can also now be sown, also sow Sweet Peas and *Mignonette* on a warm border. Roses and other climbers on walls and trellises should now be pruned, regulated, and tied in, and other Perpetual as well as summer Roses required to bloom early must be pruned.

Proceed with the propagation of all bedding plants from stock plants placed in heat for the purpose. Most are better from spring-struck cuttings, and a sufficient number of these should be grown on so as to be able to discard the old stock plants. Tricolor and other choice *Pelargoniums* may be placed in a little heat to afford cuttings, which if partly severed and left on the plants a week or ten days, and then detached and potted singly, will form roots with certainty on shelves near the glass. Seed of *Verbena venosa* sown in heat will afford good plants for May. Place in heat roots of any choice *Dahlias*, plunging them in a bed of old leaves or tan, in either of which the young shoots root freely, and they can then be taken with safety and potted in loose vegetable soil. Pot off autumn-struck cuttings of *Pelargoniums*, *Ageratums*, and *Heliotropes* likely to suffer from being kept too long in store pots or pans.

PLANT HOUSES.

Plants of *Urceolina aurea* will start into growth shortly, and must be turned out of the pots, have the offsets removed, and the larger bulbs potted singly in 5 to 7-inch pots according to their size, using turfy loam with a little well-decayed manure. Flowering during the winter months, and the flowers being both graceful and beautiful, it should be grown by everyone having a stove. *Hippeastrum pardinum* should have the offsets removed, potting the old bulbs if they require it before much growth is made; they succeed well in turfy loam, supplying them during growth with liquid manure. *Amaryllises* will be benefited by occasional applications of liquid manure. *Pancratiums* although now at rest must not lack water at the roots, and *Eucharis* in growth can hardly have liquid manure too copiously.

Where stove climbers trained to the roof are planted in narrow borders the soil becomes exhausted in a season or two, in which case take out as much as can be removed without serious injury to the roots, and substitute good fresh soil.



BEE-KEEPING FOR BEGINNERS.—No. 1.

A CORRESPONDENT of the Journal last week expressed a desire that some writer on bees would consider the difficulties of young apiarists and give them some simple lessons. His desire, doubtless, is general amongst beginners, and the expression of it is quite natural. In reading and arithmetic first lessons are difficult for both teachers and scholars—that is to say, difficult to give and difficult to learn. The work becomes easier after the A B C and multiplication table have been mastered. So it is in bee-keeping and all branches of science.

As bees have stings and know how to use them, almost all beginners experience a natural shrinking from contact with them, and feel rather nervous in their first efforts to manipulate hives or examine them internally. This is common enough, and is not to be wondered at. Nobody likes to be stung. I often think that bees owe their continued existence in the lands of civilisation to their possession of weapons of defence. The treasures of a bee hive are tempting to men, animals of various kinds, creeping things, bees of other hives, and some kinds of insects. Both swallows and sparrows kill and devour bees at some seasons, or in times of brood-rearing. It will be seen, then, that bees use their stings in self-defence against enemies real and supposed, and in thus acting the sweet treasures of their hives so much coveted are protected. Dogs, cats, sheep, hedgehogs, rats and mice, cocks and hens moving about amongst bee hives or living near them soon learn to let them alone or keep at a safe distance from them. In cold weather, while bees are sitting close together amongst their combs in a semi-dormant state, mice enter hives if their doors be

large enough and kill great numbers of bees. Many hives are thus destroyed. The bees are killed singly, and their heads only are eaten by the mice. Perhaps a word of explanation may help beginners to understand an expression used above—viz., “enemies real and supposed.” Bees are gifted with courage and the instinct of self-defence. And if young and inexperienced bees sitting at or coming out of their doors see strange objects near—men, cattle, things moving—they anticipate molestation and fly at the objects. Older and experienced bees have learned better manners, and go to work over and amongst men, cattle, &c., without fear of annoyance. This simple fact or statement goes a long way to explain the mystery of some bees being more savage than others. Bees standing in my garden near a public thoroughfare are quiet inoffensive creatures, and young bees born here are soon domesticated, and remain so, I believe, as long as they live; but bees born in a corner remote from the haunts of men or in an unfrequented garden do not like strangers to go near them, and are apt to use their stings to drive them back. The lesson I wish here to teach is this, that the most savage bees I have ever known can be domesticated by making them accustomed to the sight of human beings near their hives, and moving about them. Beginners should know, too, that bees dislike and resent interference with their hives. Rough handling and rueful shocks provoke bees very much, and often enrage them, yet they can be trained to bear and tolerate gentle handlings and the turning-up of their hives without complaint or annoyance.

However, in all attempts to handle hives beginners should use liberally smoke from fustian rags. New fustian and corduroy is so full of stiffening matter that it will not burn or smoke, but if this matter is quite washed out it will burn and answer as well as old in smoking bees to prevent them from stinging. With a piece the size of a man's hand, and rolled up to the thickness of a candle and smoking at one end, the most savage bees can be mastered. By holding the smoking end of the fustian close to half in the door of hive to be lifted and examined, and the smoke vigorously blown into the hive, the bees are mastered and cowed, and run from it as far as they can go. Such smoke does no harm, and bees thus mastered can be handled with safety—that is to say, their hives may be turned up and examined, and works of manipulation performed. The secret of the use of smoke in handling hives and bees is a very valuable one, and it was bought of an Irishman in Edinburgh for a gill of whisky many years ago.

As it is my intention to write a series of articles for the benefit of beginners in bee-keeping, I shall be glad if they freely ask questions and state their difficulties to the Editor. By doing this they will help others as well as themselves.—A. PETTIGREW, *Bordon*.

SEASONABLE HINTS.

THE sooner all hives are now examined the better. The open winter has been unusually conservative of bee life, and the frequent opportunities for exercise have caused a greater consumption of stores than usual. Hives found to be light in stores must be fed at once. At this early date I prefer sugar cake without the flour, but very needy cases may have syrup in the usual way. I find that bees feeding on the cake remain quiet and contented, while those receiving syrup are excited and desirous of going abroad. All excitement should as yet be avoided, as it is too early for extensive breeding being encouraged.

Winter packing should in no case be removed, except to change it if damp. The number of bees in a hive has not yet reached its lowest point. Indeed, with us in Scotland, the 1st of April is about the date when stocks are at their lowest in point of numbers. With diminished populations and increasing brood-rearing it is evident that warm packing is of at least as much value in spring as in winter.

Some bee-keepers are taking alarm at the large numbers of dead bees found in front of certain hives. These are generally cases where a large proportion of the stores had either been of unwholesome quality, as honeydew, or had not been properly sealed in autumn from too late feeding. An examination of such stocks will generally reveal an abnormal quantity of brood. How significant the fact that bees, as well as plants, hasten to propagate their species on the approach of danger to their own existence! There is a danger of such stocks working themselves to death. This is the American trouble known as spring dwindling. The only cure for it is to remove all combs with unsealed or unwholesome stores, and supply others if they can be had of better quality, or give dry combs and sugar cake. At the same time contract the brood-nest till the bees are crowded, and give any comb containing brood, beyond what the bees can be crowded on, to any other healthy stock.

In such cases, however, keep a sharp look-out for foul brood. Some authors declare foul brood to be one of the results of dysentery or of chilled brood. My experience is that dysentery is more often the result of foul brood, and bees in hives that are affected with it are generally the first to start breeding, from causes already hinted at. Some people may not see foul brood though it may be in the comb. In its sealed and perforated state it is unmistakeable, but more often there has been an attempt by the bees to clear it out, and thus it may escape notice. By holding a comb so that light will fall along the lower side of the cells, the scaly remains of diseased brood may be seen sticking to them. Newer combs may tell the same tale if held between the eye and a window. For foul brood I know of no remedy other than stamping it out—that is, no attempt need be made to save the combs, and even the honey had better be sacrificed, though the bees may be saved by giving them clean combs after a short quarantine. All hives, frames, and other woodwork should then be scalded, scraped, and washed in limewash.

Now is the time that most queens give out. In large apiaries from 5 to 10 per cent. of hives, even those with comparatively young queens, may lose their queens in early spring. A sharp look-out should be kept on the neatly raked ground in front of each hive. I have already found three hives queenless this spring. In such cases I never grudge to unite the bees to another stock, though if they are strong in numbers I often obtain a spare queen from a neighbour, or deprive a skep of its queen, and place the skep upon the nearest hive for a few days till the bees are well united.

Stimulative feeding—that is, the regular administration of syrup and pea flour—had better be deferred till the beginning of March at soonest. A pint of bees in a healthy condition on 1st April will, if attended to and if they have a good queen, be quite ready to store surplus by the time the Clover blooms. Early-breeding stocks frequently fail during the honey season, the queen gives out, or the bees get the swarming mania and will not be controlled. Healthy small stocks with good queens commencing to breed later will go on breeding right through the season.

Now is the time to prepare hives, supers, &c., for the coming season. Dealers in apiarian supplies generally give discount on early orders, and later orders are frequently impossible to get filled owing to the press of business later on. Orders for American goods should specially be forwarded in good time, as distance adds another difficulty in the way of later supplies.—WILLIAM RAITT, *Blairgowrie*.

TRADE CATALOGUES RECEIVED.

Thos. S. Ware, Hale Farm, Tottenham.—*Catalogues of Hardy Perennials (illustrated), Florists' Flowers, and Seeds.*



* * All correspondence should be directed either to “The Editor” or to “The Publisher.” Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Dendrobium nobile (Rus).—We have no knowledge of the plant to which you refer. Will you kindly furnish us with particulars of the source whence you derived the very remarkable statement quoted?

Notice to Leave (A Constant Reader).—If a gardener is paid weekly he can leave his situation by giving a full week's notice—that is to say, if on the day on which he receives his wages he gives his employer a written notice to leave, he (the gardener) can leave at the expiration of that time if no agreement to the contrary was entered into at the time of the engagement.

Astrantia major (G. U.).—This plant is not a native of England, but is recorded as naturalised in some places, especially in the neighbourhood of Malvern and Ludlow, where it is supposed to have escaped from some garden. This is probably the case with your specimen, although you could not trace its origin. The plant is described in several works on British botany, such as Bentham's “Handbook of the British Flora” and Hooker's “Student's Flora.”

White Azalea (*J. Freeman*).—The flowers are very attractive, white, petals of good substance and smooth. One of the blooms somewhat resembles a Gardenia and the other a Balsam. Occasionally similar flowers are produced by *A. Borsig* and *Bernhard Andreas alba*. Is the variety a seedling? If all the flowers are like those before us we think it meritorious.

Fungus on Mushrooms (*T. W.*).—The fungus that is attacking your Mushrooms is *Xylaria vaporaria*, and has probably been introduced at some time or other with unpurified manure. It spreads rapidly in damp underground cellars and in such positions as you describe. We can only suggest that the cellar be subjected to a thorough cleansing and disinfecting process for extirpating a pest so troublesome and injurious as this undoubtedly is. The rough grass you need for sowing under trees is *Aira cœspitosa*.

Asparagus (*Willesden*).—There is very little difference in the varieties of Asparagus, and none as to their adaptability to any particular kind of soil. Either the ordinary Giant Asparagus as sold by nurserymen, or *Conover's Colossal* will give satisfaction if the soil is suitable and the cultivation sound. Clay soil is not suitable for Asparagus, and in some clays the plants will not grow. A rather light, or, at any rate, a free gritty soil containing a liberal admixture of vegetable matter, is requisite for the production of fine heads. Your soil must be well worked and pulverised, affording such additions as will render it free, or you can scarcely expect satisfactory results. If you need further information relative to preparing the soil and planting we will readily supply it.

Strawberries (*Idem*).—You ask for "Strawberries that will ripen in June and August." If you mean you want varieties that will not ripen in July, we fear you will not succeed in obtaining them. The following are good varieties for succession, and will succeed in strong rich soil—*Vicomtesse Hericart de Thury*, *Sir Joseph Paxton*, *Dr. Hogg*, *Elton*, *Eleanor*, and *Frogmore Late Pine*. If you require more varieties and will state the number, we will make a further selection.

Plants Too Tall (*W. J. P. S.*).—You say your plant is either a *Dracæna* or an *Australian Palm*. If it is a *Dracæna* you may adopt the practice you suggest, but if a *Palm* the plan is not applicable. You had better ask a good local gardener or nurseryman to see the plant, and take his advice on the subject. If the size of the specimen cannot be reduced, possibly you might exchange it for a smaller with someone who may be furnishing a large conservatory.

Aphides on Peach Trees (*R. L.*).—Your trees are attacked by the Peach aphid, in respect of which Mr. Abbey has recorded that "Nicotine soap at a strength of 3 to 4 ozs. to the gallon of water applied to the trees resulted in death to the insects and no injury in any case to foliage or fruit." Mr. Abbey's experiments with this insecticide may be found on page 280, April 8th, 1880.

Climbing Plants for Cool House and Stove (*J. F.*).—You give no particulars as to the size of the houses for which the plants are required, so we have selected about an equal number of strong and moderate-growing plants. **Greenhouse**—*Clematis indivisa lobata*, *Cobæa scandens*, *Habrothamnus elegans*, *H. aurantiacus*, *Hardenbergia ovata*, *Hibbertia dentata*, *Lapageria rosea*, *L. alba*, *Lonicera sempervirens*, *Rhodochiton volubile*, *Tecsonia Van-Volxemi*, and *Mandevilla suaveolens*. **Intermediate House**—*Bomarea Carderi*, *Bougainvillea glabra*, *Gloriosa superba*, *Manettia bicolor*, *M. micans*, *Passiflora princeps*, *P. kermesina*, *Rhynchospermum jasmynoides*, *Stigmaphyllon ellipticum*, *Thunbergia Harrisii*, *Jasminum grandiflorum*, and *Lagerstroemia indica*. **Stove**—*Allamanda Hendersoni*, *A. Schottii*, *Bignonia venusta*, *Clerodendron Balfourianum*, *Dipladenia Brearleyana*, *D. anabilis*, *Hexacentris mysorensis*, *Ipomœa Horsfallii*, *Jasminum Sambac flore-pleno*, *J. gracillimum*, *Petrea volubilis*, and *Stephanotis floribunda*.

Manuring Vine Border (*Reader*).—If you have "no time" for applying liquid manure when it is needed, we presume you will have "no time" for removing a portion of old soil from the border, adding fresh loam with a fourth of wood ashes and a 6-inch potful of crushed bones to each barrowload of the compost, and over all spreading a layer of rich manure 4 or 5 inches thick. This is the best mode of improving a Vine border where the root-action of the Vines is defective. If the border is well drained, and water passes through it freely, you might, if you had time, apply liquid manure to it now, either using the drainage from dunghills, diluted sewage, or 2 ounces of guano dissolved in each gallon of water given. Liquid manure may be applied stronger now than in the season of growth. Such an application would be beneficial, but not so effectual as a fresh and suitable medium for the roots to work in. The quickest mode of assisting Vines is to spread 2 ounces of guano, or twice that quantity of superphosphate of lime, on each square yard of the border just before a heavy shower of rain in June or July.

Cypripedium insigne (*Idem*).—If this is the species to which you refer, the following mode of culture practised by a competent gardener will be suitable for your plants—"This easily cultivated Orchid well repays good treatment. Our plants are repotted in the spring of every second year; if they are allowed to remain longer without repotting the flowers are much smaller than they ought to be. For plants in 6 or 7-inch pots about 1½ inch depth of drainage is given; the roots of the plants are washed clear of all old material, and the new potting soil is packed equally amongst the roots in repotting, leaving half an inch beneath the rim of the pot clear for receiving water. The compost consists of peat, sphagnum, dry cow dung, and broken potsherds, and the second year a surfacing of cow dung is given the plants, and soot water used for watering. After flowering the plants are placed in a cold vinery, and in spring are kept warmer. Through summer a pit is found for them, and when in flower they are placed wherever they may be required." You will find an excellent article on *Epi-phyllums* on page 196 of vol. xxx., March 9th, 1876. If you do not possess this it can be had from the publisher in return for 3½d. in postage stamps, and a request that he send you No. 780 of the Journal.

Propagating Clematises (*O. M. B.*).—Although the young wood just when it is passing from crispness to firmness will emit roots in sand under bell-glasses, the pots being plunged in gentle heat, much care is needed in management, and success can only be achieved by experienced propagators. The best mode of increasing Clematises is to graft the young wood of the nature indicated on pieces of roots with fibres attached, of such free-rooting species as *C. Flammula*, the roots being potted, and the pots after the grafting is done being plunged in gentle heat or kept close in a moderately heated structure. You will find fuller particulars on grafting and growing Clematises on page 394 of vol. ii., third series, the issue of May 5th, 1881. This number can be had post free for 3½d. from our office.

Grafting (*J. H.*).—The methods represented by the examples are correct, but the workmanship is not good. There must be no portion of the slice above the stock, as is much too visible in the larger specimen, neither must the tongue of the scion be broken at the bottom as in the example before us; otherwise

bark fits to bark closely and well, which is a very important point. In the smaller specimen the system, which is as good as any for wood of that size, is very imperfectly carried out. Neither the slicing of the stock nor scion is done with sufficient smoothness and regularity, and grafting thus done would not be successful. The bark of the stock and scion must at least fit closely together on one side, and on both sides if possible, as might have been done in this case; but instead of this the bark does not touch with any degree of regularity on either side of the stock. We presume you are aware that only firm last year's wood is suitable for scions. We are unable to name the Apple. It has no relation to the *Blenheim Pippin*, and is probably a local variety. We consider it worthless, and should cut down the tree and graft with a superior kind.

Cutting-down Camellias (*H. W.*).—No plants endure cutting better than these. You may cut them down as close as you desire, and then, if the root-action is even fairly good, and the plants are kept in a warm house and syringed frequently, young growths will issue from the old wood freely. If they are cut down entirely, as if pruning a *Rose trec*, and the roots are much crowded or in inert soil, they may have a great part of that soil removed, reducing the old balls considerably, and giving them a fresh sweet compost of turfy loam and peat in equal parts, and a plentiful admixture of silver sand. By carrying out this practice many tall and unsightly Camellias have been transformed into dwarf bushes bearing healthy foliage and fine flowers. You may cut them down whenever you can afford brisk heat with moisture to induce them to break freely.

Heating a Small Greenhouse (*Clifton*).—By your request your letter was submitted to "D. Deal," who has replied as follows—"My house is 20 feet by 9 wide, and my difficulty in heating it was simply that any hot-water apparatus that I then knew of would have had far too much power for so small a building, and that therefore the waste would have been great. And as economy was one great object with me, I determined, with the assistance of one of those native geniuses who are sometimes found in country villages, to heat it with hot air; but instead of making flues to have 6-inch drain pipes. This I did, placing the small furnace at one end, bringing the pipes all round the inside at a little distance from the wall, and making the chimney close by the furnace, so that there was the full benefit of the fire given to the house. I found, however, that in severe winters, when there was of necessity a larger amount of fuel used, the soot soon collected, and it became necessary to clean out the pipes oftener than was desirable, and it was very troublesome to have to take the elbows to pieces in so doing. We therefore altered it by building at each turn in the flue where the elbow should have been a small opening; this was covered with a tile about 12 inches square. When it became necessary to clean the flues, all that was required was to take off the tile, and thus easy access was gained with a fine brush to all parts of the flue. This has succeeded perfectly, and I have no difficulty. As to the temperature at which I keep the house, I can only say my sole object is to keep out frost, and so long as this is done I am not careful about the temperature rate. I have lately seen a boiler which requires no setting, and which seems to act well; still I am so thoroughly satisfied with my present plan that I should not be induced to change it for any other system."

Making Bone Manure (*A New Subscriber, Liverpool*).—We extract the following recipe from the "Gardeners' Year Book" on making superphosphate of lime—"Place 5 cwt. (or twelve bushels) of bones on an earthen floor, surrounded by a rim of ashes; pour on as much water as the bones will suck up, and then pour on 2 cwt. of sulphuric acid; it will boil somewhat violently for a while; when this has subsided it will get tolerably solid, and the ashes and all may be shovelled up together, and will be fit for use in a day or two." Another mode of dissolving bones is given in the same work which we cite—"Take a large watertight hogshead and cover the bottom with about 6 inches deep of dry soil; on this put a layer of bones of the same depth, and cover them entirely with wood ashes; on these another layer of bones, then ashes, and so on till the hogshead is full, placing a good thickness of ashes on the top. Leave it exposed to the rains all summer and winter till spring. Then on removing the contents of the hogshead, the bones will crumble to powder under a slight pressure, and form one of the most valuable manures ready for immediate use." The manurial value of bones consists in the great quantity of phosphate of lime they contain. You will find more particulars and much valuable information in our manual on manure, which can be obtained post free from this office in return for 3½d. in postage stamps. The "Year Book" (price 1s.) can only be had now from Smith's bookstalls at the railway stations.

Heating a Mushroom House (*Idem*).—We doubt if a paraffin stove would not do more harm than good, as it would dry the air unduly, and a high temperature and dry atmosphere in a Mushroom house are great evils. Mushrooms really require but little heat. Hundreds of pounds of the finest quality are gathered weekly throughout the winter from beds in the open air, but covered thickly with straw, near London, and without doubt they might be similarly produced near Liverpool if the necessary cultural skill were provided. If you can keep your house at a steady temperature of from 50° to 55° you may with otherwise good management have abundance of Mushrooms. The surface of the beds may easily be kept at that temperature if the beds are thick enough and are well covered to conserve the heat. Or perhaps you may have room to place a heap of sweet fermenting material in the house, and if so this will afford a genial heat. If the house is by exposure or the thinness of its walls and roof liable to sudden fluctuations of temperature, thatch it thickly; the temperature will then be equable, and for the greater part of the year suited for Mushrooms. A still damp air and the temperature above named are the conditions you should aim at providing; a dry air, draughty place, and a high temperature being inimical to the growth of Mushrooms. Your other question had been answered before the receipt of your second letter.

Arrangement of Vinery (*Yorkshire Rector*).—Your proposed alteration will be a very great improvement, and we think the projected arrangement of the house is good. The flue and plant stage over it will do very well, but slates would be preferable to open latticework over the flue, the heat from which might otherwise be too dry for the plants. The pipes must not be in direct contact with the furnace, but a length of 6 feet should be built with bricks, as the intense heat might cause the pipes to crack. There should be a rise of from 6 inches to a foot from the furnace bars to the flue, and all the turnings must be smooth—that is, there should be no sharp angles or elbows anywhere. A damper would be useful placed in the chimney for regulating the draught and conserving the heat. The Vine border is of the proper depth and well formed, and the first 5 feet will be ample for the first year. If you covet a large number of medium-sized bunches of useful Grapes, you may plant five Vines, those at the ends being 18 inches from the extremities of the house, and the others equidistant between them. If you prefer a fewer number of bunches and fine examples, four Vines will be sufficient. They may enter the house just under the sill and on a level with the front stage as shown in your sketch. In all probability all the Vines will not flourish equally well; and if one makes better progress than the others and produces better fruit we should take an additional rod or

rods from this, removing the others, and so let one or two Vines eventually fill the entire house. You would in all probability derive more satisfactory results from this extension system than by resorting to the extreme restriction of four or five Vines that such a short roof would necessitate. In forming the flue provision must be made for cleaning out the soot occasionally.

Forming a New Kitchen Garden (San Juan).—Probably the old pasture intended to be broken up is sufficiently drained, otherwise this ought not to be neglected, in fact should be first commenced. A difficulty in your case may be experienced in securing an outlet for the main drain. Where this main drain shall be cut must depend upon circumstances. If the intended garden is nearly level it may traverse the centre, the smaller drains running into it from both sides; or if the garden is on a declivity the main drain formed in each case with, say, 5-inch pipe tiles, at the least 3 feet in depth, may be disposed along the lower side. The smaller drains may be formed with 2 or 3-inch pipe tiles, be disposed about 8 yards apart, and at the farthest point from the main drain not less than 2 feet in depth. At this depth, however, they are liable to be disturbed when the ground is trenched, consequently if the main drain have a lower outlet all the lesser drains should be put in deeper. The next operation will be to line out but not necessarily complete the walks. Save the turf from these for the fruit trees, at all events near where these are to be planted, and for digging in, about 6 inches of the top soil should be thrown out for a similar purpose. Make the bottom of the walks firm and slightly convex in form; cover with about 6 inches of brick ends or other coarse material, on this place about 2 inches of coarse gravel, and finish off with an inch of binding gravel. Broken clinkers and ashes from stoveholes may with advantage be substituted for the coarse and binding gravel, and if watered through a rose pot and well rolled will bind quickly. If either box or tiles are employed for edging—giving the preference to the latter—they should be laid prior to the gravel being wheeled on. By all means double-dig the whole of the ground for vegetables and fruit trees, but do not bring the subsoil to the surface, as by so doing you unduly bury the fertile workable soil, in exchange for that which is sterile and unmanageable. What is known as hasty trenching should be resorted to, which may be carried out in your case as follows—The top spit of a trench 3 feet wide should be taken out from either the east or west end, whichever happens to be highest, and wheeled to the other end. Then break up the subsoil with forks; next measure out another 3-feet width, take off the turf, roughly chop it up, dispose it over the subsoil of the first trench, and on this turn the top spit of the second trench. Break up the subsoil of this trench, cover with the turf and top spit of the third trench, and so proceed, that soil wheeled back being used to cover the subsoil of the last-formed trench. The depth of the top spit should depend upon the nature of the soil; probably after the turf is pared off 9 inches of good soil only will be fit to bring to the surface. We should prefer the borders for the fruit trees to be 4 or 5 feet wide, and should prepare them exactly as recommended for the vegetable quarters. Turf will not cause the trees to "make too much wood," but is the best of material for a fruit border. Not only would we dispose some between the spits but should also stack a quantity of that taken off the intended walks, and at planting time next season should chop this up roughly and fork it into the surface prior to planting. Deeply buried manure or turf induces deep rooting, whereas if the roots are encouraged to remain near the surface much fibre is formed, and this is most conducive to fruitfulness as well as longevity. When the young trees are received cut off any coarse roots with a downward tendency, and any roots badly bruised, and also cut off the broken ends to facilitate healing. See that the holes for them are sufficiently large and made firm at the bottom, dispose the roots evenly and nearly flat, covering with comparatively fine soil. When finished off the collars ought to be only slightly below the surface. If planted in the autumn mulch the border near the trees with rough manure by way of protection from frost, but the aspect being north the mulching will be unnecessary later on. The newly broken up pasture land ought to produce Potatoes of the very best quality for the table. Veitch's Improved, Mona's Pride, and Early Hammersmith are good varieties of the Ashleaf type, and one of these should be extensively grown for early supply. To succeed these you would find Triumph, a red round American variety, and the old Lapstone Kidney, suitable; Schoolmaster is excellent for main crop, and Magnum Bonum is much liked for the latest supply. Paterson's Victoria is remarkably good as regards quality, none being superior at this date, but it is more liable to disease than the two last mentioned. The Ashleafs may be planted in rows 2 feet apart, and the sets 9 inches asunder; the second earlies 30 inches apart and 10 inches asunder; Schoolmaster 3 feet apart and 12 inches asunder; while the rows of Magnum Bonum may with advantage be 42 inches apart, and the sets in the rows 12 inches asunder. The number of the Journal containing information on building has been sent to you. It is No. 355, not 365 as was misprinted last week.

Names of Fruits (S. T.).—1, Golden Nonpareil; 2, Bedfordshire Foundling; 3, Beachamwell; 4 and 5, Not known; 6, White Nonpareil.

Names of Plants (T. F.).—1, *Adiantum viviparum*; 2, *Didymochlæna lunulata*. (A. D.).—A few leaves with no indication as to the habit of the plant are insufficient to enable us to identify it with certainty, but it resembles *Draena cougesta*.

Notes on Bee Hives (Inquirer).—We have an excellent article on this subject from Mr. Cheshire, which will probably be published next week.

COVENT GARDEN MARKET.—FEBRUARY 15.

IMPROVEMENT in business well maintained, all the better class of goods advancing in value. Keut Cobs selling more freely at lower rates.

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	9 0 10 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	♣ 100	2 0 2 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	♣ sieve	1 3 1 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 6
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 0
Caulicourms.....	♣ 100	1 6 2 0	Radishes... doz.	bunches	1 0 0 6
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts... doz.	bunches	2 0 4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	1 0 2 0	Seakale.....	basket	1 0 1 6
Endive.....	dozen	1 0 2 0	Shallots.....	♣ lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
G. rlie.....	♣ lb.	0 6 0 0	Tomatoes.....	♣ lb.	1 0 2 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	4 0 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	♣ sieve	2 0 to 6 0	Lemons.....	♣ case 12	0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	♣ lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	♣ 100	4 0 6 0
Currants, Black..	♣ sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	♣ sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	0 0 0 0
Filberts.....	♣ lb.	0 0 0 0	Pine Apples....	♣ lb	1 6 2 0
Cobs.....	♣ 100 lb.	60 0 65 0	Strawberries...	per lb.	0 0 0 0
Gooseberries....	♣ sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	♣ lb	3 0 8 0			



POULTRY AND PIGEON CHRONICLE.

CULTIVATION AND MANAGEMENT OF HOPS.

(Continued from page 122.)

AT the time of planting, and where the variety is true, care should be taken that the cuttings from the male plant are kept distinct from the others, or they are likely to be distributed irregularly over the ground, instead of having them, as they should be, at distances of ten or twelve hills from each other, so as to have one male-planted hill to 100 or at most 150 Hop-growing hills. Some planters are still of opinion that male plants are entirely useless. Mr. Rutley, in his excellent prize essay on Hop cultivation, and published in the Journal of the Royal Agricultural Society in the year 1848, alludes to this matter, and says, "Nearly forty years since I took a farm on which there was only one Hop ground of about ten acres, in which there was not a single male plant; they were Canterbury Hops, produced a great quantity of bine and a fair quantity of burr. The Hops, however, were generally small, loose, and hover. Being at that time satisfied that the male plant would improve them, I planted one hill in every 144 with them. In the second year after setting they produced a considerable quantity of farina, and when the burr came into hop it had the effect upon those plants which were near, so that the Hops were larger and more firm, closing at the tip, whilst those at a distance were as loose and hover as in previous years. In the next year, where the male plants had attained their maturity, all the Hops grown were larger and firmer, and this continued during the ten years whilst I held the farm, and I saw every year the same advantage by continuing the male plant." Mr. Lance, in his "Hop Farmer," writes most decidedly in favour of cultivating the male plant, and gives a scientific description of the fertilisation which occurs in their growth.

The month of March is the best period for planting, because in case dry weather sets in at a later time the sets are likely to die for lack of moisture. When cut sets are planted, and the land has been well tilled and abundantly manured and forked in, the ground may be cropped between the hills with Potatoes or Carrots. Some grow Mangolds or Turnips, but the latter favour attacks of fly, which in certain seasons will also seriously injure the young shoots of the Hop bine. The cultivation, however, of one or two lines of the former between the hills is beneficial, because their cultivation, hoeing, &c., keeps the land clean and pulverised, assisting the roots of the Hops, and the value of the intercrops pay some of the expenses of the culture, especially in the first and second years after planting.

We object to ploughing the Hop land, as the tread of the horses in the best strong loamy soils impedes the progress of the rootlets of the Hop plant; the digging should, however, be done with a strong three-grained fork with what we call spud points (this is a hint to gardeners), being preferable to the work usually done

with the spade, except where it is desired to go deep and turn the bottom soil upon the top. Digging is always attended with considerable expense, but we look forward to a time when the digger driven by steam, and exhibited last July at the meeting of the Royal Agricultural Society at Derby, shall be so altered and improved as to be made available in digging land under culture for Hops. There have been more improbable alterations and improvements in farming machinery than we have named, the reaping and binding machine to wit.

Dressing or cutting the plants in the hills must now be described. This is done by boys or women opening around the sides of the hill with a small narrow hoe or pecker a little below the crown of the hill. A man then follows with a pruning knife and a small hand-pecker, with which he clears out the earth between the sets on the crown of the hill, and the shoots of last year's growth that were tied to the poles. These, from having earth put on them the preceding summer, swell out to four or five times their original size, and form what are termed sets or cuttings. Cutting them off at the right part should be particularly attended to or great injury will be done; it is therefore necessary that the person cutting them should ascertain exactly where the crown of the hill is. They should be cut between the crown of the hill and the first joint, for it is around the set close to the crown where the best and most fruitful bine proceeds. If the set is pared off too close to the stock or crown it takes away the part whence the bine comes, as small buds are seen ready to start at the time of cutting, and if these are removed the bines become weakly and few; on the other hand, if the set is cut above the first joint the bines which come from that or any other joint higher up the set grow fast, but are coarse and hollow and also unproductive.

The Hop plants will now have arrived at the time when poling should be done, and Mr. Whitehead in his essay published in the Journal of the Royal Agricultural Society in 1870 on the recent improvements in the cultivation and management of Hops, says: "During the last few years many new plans for poling Hops have been devised, the primary notions of which came from America, where poles and labour are dear and inventive genius is particularly fertile. According to one of these plans, for which a patent was taken out in this country, one pole is put to each hill, and stout string or cocoa-nut fibre yarn is stretched horizontally at a distance of from 8 to 10 feet from the ground from pole to pole. The appearance is very picturesque, as may be imagined, but the system is not satisfactory, and has been discontinued by many planters who gave it a fair trial. I have tried it for three years upon three acres. I found that the expense of tying the bine to the horizontal strings was very great; the bine never took kindly to the string, so that the tyers were perpetually required throughout the summer, and that the produce was each year considerably less per acre than in another part of the ground poled in the usual manner, though in every other respect treated the same as the stringed piece. It is, however, right to state that Mr. Gunner of Alton, Hants, has had several acres trained in this way for some years, and is quite satisfied with the result. This gentleman writes as to the expense of tying—"It is really nothing when you think of how much is saved in poles, how good the quality of the Hop is, how little liable to damage from wind, and how strong your plant will always be, for I believe if the string-training is properly carried out there will be no such thing as weak bine."

Training on wires variously fixed is practised in America, in Germany, and in France. In many districts of these countries poles are dearer than in England. Mr. Farmar of Kyrewood, Tenbury, has patented a system of training Hops on wire, consisting of an arrangement of vertical wires communicating with horizontal wires. Large posts stouter than telegraph posts are fixed at the end of each row of Hops, to which wires are fastened at the top and bottom. These wires run horizontally from post to post, and at every hill vertical wires are fixed between these two parallel horizontal wires, to which the bines are tied. By an improvement, however, in Mr. Farmar's process the ironwork is so fixed that it may be easily taken down at picking time. Several planters in the Hereford, Worcester, and Farnham districts have adopted this method, and speak favourably of its advantages. The first cost of it is put at £46 per acre, and it is calculated that it will last for twenty years in an efficient state, while the usual method of poling is estimated at £37 10s. as first cost, independently of the necessary yearly renewals of the poles. The main objects of the patentee have been economy of cost and labour and to obviate the necessity of cutting the bine. The latter has at all events been achieved, and time will prove whether the former has been attained."

It is well known that the nature of this plant is to climb spirally towards the light, making its revolutions with the course

of the sun; therefore the vigour of the whole plant will be diminished by these constrained efforts when tied and twisted round the horizontal wires or strings. We also believe that in the case of vertical wires the bine would require constant tying, as its reflexed bends would not find a firm hold upon the smooth surface of wires, and that short turns would be general and cause want of vigour in the bine, and prove fatal to the chances of a full crop. Mr. Coley of Maidstone invented a plan in 1868 on somewhat peculiar principles, which has been already largely adopted, and has many advantages over the ordinary vertical wood poles. According to his plan two stout thoroughly creosoted poles, 16 feet or 14 feet reduced to about 12 feet long, are firmly pitched to each hill east and west. These have two pieces of stout iron wire fastened to their tips to form a fork to receive a diagonally inclined pole of from 12 to 14 feet long, which rests in a staple fixed in the upright pole of the opposite hill, a stout piece of wood being nailed to the upright at each hill to keep them firm. These uprights are fixtures. The diagonal poles are, however, lifted out at picking, which greatly facilitates this work.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—From the few first days in this month nearly all kinds of horse labour has been possible, and much of it has since been executed in a satisfactory manner, especially the pressing and drilling of Beans, Peas, Vetches, either separately or together. These mixed crops of Beans and Peas or Vetches have lately come into repute during the past year or two, but particularly when put in with the presser and drill combined, of which we find an excellent arrangement and apparatus made and manufactured in a southern county by Messrs. Tasker & Co. It is adapted for Wheat on light soils, as the presser has always been used to great advantage on the hill farms, but it has seldom been accompanied with an apparatus for sowing various kinds of seeds at the same time by one operation. They have for some time had their attention called to it, and have succeeded in bringing out a very excellent implement, for which they were awarded the first prize at the Royal Show at Plymouth in 1865, and again at Bedford in 1874. The drilling apparatus is attached to the back part of the frame of the land-presser and adapted for depositing the seeds of any kind in grooves made by the presser, whether of two or three rings or more. They are not only manufactured for the work, but the apparatus can be attached by them in a few days to any presser now in use, being fitted with conducting coulters, &c., to the wheels, and when turning on the headlands can be lifted in or out of work with a lever by the driver or conductor.

Hand Labour.—The attendance of the drowner in the water meadows will be required more than usual on this occasion to regulate the application of the water, for the supply has been very short up to this time, and the growth of grass very irregular in consequence. Although the weather has been very favourable for early grass on the upland and park pastures, yet the irrigated meadows are cold and low, and will not often produce grass in due season unless the usual supply of flood water can be properly distributed. Potato-planting will now employ men, women, and boys, some to plant, some to fetch and carry the tubers or cut sets, and others to sow and distribute the guano in the furrows with the sets, and to prevent this from flying before the wind we always use damp ashes in admixture. If dung is laid out the men will be required to spread it, and the women to rake it into every third or fourth furrow upon the sets. Early sorts of Potatoes should be planted at 27 inches apart between the rows, but the late sorts not less than 3 feet, in order to give room for them to spread both roots and haulm to obtain a full crop of even-sized tubers.

Live Stock.—We cannot recollect a season since 1840 when the epidemic lameness first broke out in the sheep, when they have been so free from disease and foot rot as during the past winter and present season. The various flocks of Down ewes have also brought more twin lambs than usual, and are generally very healthy. The lambs from the Horned Dorset and Somerset ewes are fast being sold in London and other large towns at a good price, and this will continue as mutton is so high in price, and because no country can compete with our early lambs, and the lambs being of such capital quality in consequence of the favourable season will be sure to keep up the market price. Veal is sure to sell well, as the demand for milk is so much increasing that fewer farmers will fatten calves; but for those farms which are from five to seven miles from a town or railway station nothing pays like veal, especially if we get Down or Hereford calves, for these are always of the best quality, far superior to Shorthorns, these being too coarse and bony for first-rate veal. Some farmers are making it a practice to supply calves from the south and western counties of the best sorts as sucklers, and deliver them at any station within reasonable distance. The plan we adopt when the calves first arrive on the farm is to suckle three or four to one cow, and give them, besides cake and meal, balls made up with milk. This insures the health of the calves, and when the fat ones are sold we have always some in hand to take their place, two to a cow first, then one, but always with meal from hand or trough. They form a good mixture of flesh and fat and keep in full condition up to the time when they will realise £5 each, for we never sell

them under that price. But it does not pay so well to make them larger, as the price recedes as the calves become too heavy for the best trade. Dairy cows are doing well and making greater quantities of good butter than usual, owing to some grass being found in small quantities in consequence of the mild winter; this grass raises the quality of the butter if care is taken to give bran or Wheat offal and meal, and not too many roots, but brewers' grains are best for milk-sellers.

POULTRY AND PIGEONS

POULTRY IN CONFINEMENT.

TEN shillings per hundred is a price seldom attainable for eggs, and they are selling in the Merse of Berwickshire this day (February 8th) at three farthings each, and if this fine weather keeps much longer a bawbee will be about their value. Mr. Ells-worthy of Court Hay is wrong if he concludes that a grass run is indispensable for keeping hens in comfort and profitable. My run is 16 feet long by 3 feet wide, and during the year 1881 my stock of cocks and hens has never been under three score, and the death rate per annum has not during thirty years exceeded 2 per cent., and the only difficulty that I have to contend with is that my poultry are apt to get too fat and lazy. Being from home at present I am unable to refer to my balance sheet for a true and most particular account of the cost that my hens give me eggs at, but I am quite justified in saying they do not cost nearly 6d. per dozen. My treatment is entirely my own, and is within the compass of every householder that has a plot of ground and can give or entail upon himself a little attention. I do not say trouble, because my poultry give me as much pleasure as does the beauty of my lovely garden, which, by-the-by, is also under my own peculiar care, and both afford to friends and visitors something to look at and admire. If agreeable, on my return home I shall be glad to give an account of the way that I raise eggs at about 4½d. per dozen. During a long lifetime I have been Jack of all trades, now I am master of none, yet a retired happy—OLD FARMER.

[It will be most agreeable to us and our readers to have the particulars suggested.—ED.]

RESULTS OF POULTRY-KEEPING.

"Do they pay?" is the first question generally asked relative to fowls. I for one say Yes, if properly cared for and fed judiciously. I consider overfeeding quite as detrimental to their egg-producing as underfeeding is. If fed continually with Indian corn fowls get too fat internally. On the 1st of January I had nine mixed hens and one cock. The first commenced laying on the 16th, and from that date till the 23rd of October I had 942 eggs; but in the meantime I killed two hens in June, which reduced my stock to seven hens. Putting the eggs at 1d. each would be worth £3 18s. 6d.; the amount paid for corn was £1 1s. 11d., leaving a profit of £2 18s. 7d. They had besides the corn, house scraps, crusts of bread, &c., that would have otherwise been thrown away. They are chiefly penned, only having an occasional run out for perhaps an hour or two in a week, with plenty of green Cabbage and such-like given to them when confined, and clean water constantly. They have a dry roosting place well ventilated, but free from draught. The pleasure and convenience of having fresh eggs when wanted would be a sufficient return for the food they eat. Spanish bear confinement, and are good layers of large eggs.—S. TAYLOR, *Acacia, Rawdon, Leeds.*

POULTRY NOTES.

THE Bath and West of England Show will this year be held at Cardiff. Arrangements are being made for it to be at Bridge-water next year.

A POULTRY and Pigeon Show at Taunton is fixed for Wednesday and Thursday in next week. It is, we believe, many years since a show was held there. It is certainly somewhat late for a show, but we do not disapprove so much as some of our friends do of shows at this time of year, as long as breeding pens are not separated for exhibition. Birds hatched in the summer of last year ought, after such a winter as this, to be in the pink of condition, and now at last have a fair chance of winning before they are put into breeding pens for the later season.

A SHOW of Bantams and Pigeons will take place at Ross,

Herefordshire, on Tuesday next. We remember some years ago a very pretty spring Bantam show at the Crystal Palace, and shall be glad to see another devoted entirely to the miniature varieties of poultry.

RECOGNITION on the part of France of the services of British jurors at the French International Exhibition of 1878 has come somewhat tardily, but it has come at last. Some few months ago splendid bronze medals were forwarded to them from the Ministry of Agriculture, and from time to time the official reports on the various sections of live stock are presented. It seems that when all have arrived the late jurors will be provided with small French libraries. The subjects of the said reports are sometimes a little abstruse, those of the two last volumes being respectively, "The Useful Insects," and "Fish and Crustaceous Animals."—C.

POULTRY DYING.

WOULD you, or some of your numerous correspondents on poultry, give me advice about a disease that has been going on amongst my poultry for the last six months, during which time I have lost a dozen or more of old and young birds? I will now describe the disease and how it attacks them. First of all the combs become discoloured, then they pine away, which lasts for about two months, then they die. During the period of illness they eat quite ravenously, and their eyes have a staring look, and at times they twist their heads about and fall over. Their food consists of bran and Indian corn meal and refuse from the house, with a feed of barley and oats morning and evening, and they have a grass run of about eight acres. The poultry house is entered from the dung fold. After rain small pools of water gather in the yard. The birds seem to prefer drinking that rather than to go to the pond where they can get plenty pure water. The poultry house is not ventilated from the top, but plenty of air passes in from below. Its dimensions are 12 feet long, 8 feet wide, and about 13 feet high at back, sloping down to about 6 in front, and cemented floor. It is brushed out two or three times a week, and limewashed over once a month. Upwards of forty fowls roost in this house every night. I hope by the description I have given someone will be able to give advice or a cure.—A. NELSON.

OUR LETTER BOX.

Calves Dying (*R. J.*).—You do not say whether your two Alderney cows which have dropped their calves prematurely at six and seven months gone respectively were still giving milk, although you say that four others of the herd are doing well, and all now appear healthy. We do not approve of giving Mangolds, especially at this time of year, when the cows receive a liberal allowance of pollard and good hay, with a run in dry meadows during the day. We think cabbage is not only the most healthy food at this time of year, but better for the milk and butter if of the Savoy variety. If more than about 30 lbs., or even less, of Mangolds per day has been given it might have produced abortion; it might have also been produced from the cows being in too high condition, for internal fat in the breeding cows is always dangerous during any stage of pregnancy. Eating Poplar boughs would not have injured them, particularly as they never exhibited any distressing symptoms. It is not said how far distant the neighbours' cows are away from yours, or which had lost their calves first, for in our experience a cow at any time may bring a dead calf without any cause assigned, but others are sure to be affected more or less if they are within reach of the affected animal because of the noxious odour arising from it. In this way enormous losses have occurred in some herds. Cows having their calves are never after safe breeders.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. February.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sun.	5	30.452	33.4	32.2	S.W.	36.6	38.4	29.5	39.7	24.2		
Mon.	6	30.501	35.8	35.2	E.	36.9	41.0	29.1	49.5	28.4		
Tues.	7	30.547	40.3	40.0	E.	37.6	45.6	35.2	50.5	24.7		
Wed.	8	30.453	38.1	36.9	E.	38.3	43.3	36.3	43.5	34.4		
Thurs.	9	30.405	36.3	34.8	S.W.	38.3	38.5	33.4	39.0	27.2		
Friday	10	30.248	35.5	35.0	S.	38.1	45.0	33.1	63.3	32.8		
Satur.	11	29.955	36.4	35.9	E.	37.8	50.8	33.5	72.7	25.9		
		30.366	36.5	35.7		37.7	43.7	32.9	51.2	29.7		

REMARKS.

5th.—Thick, gloomy; very calm.
6th.—Foggy early; fine calm day.
7th.—Overcast; calm.
8th.—Clear and fine.
9th.—Cold; fair.
10th.—Very fine bright day.
11th.—Foggy early; fine day with bright sunshine.
Temperature rather higher than in the previous, and exactly the average.
Barometer high, very little wind, and no rain.—G. J. SYMONS.



23rd	TU	Royal Society at 4.30 P.M.
24th	F	Quekett Club at 8 P.M.
25th	S	Royal Botanic Society at 3.45 P.M.
26th	SUN	1st SUNDAY IN LENT.
27th	M	Royal Geographical Society at 8.30 P.M.
28th	TU	
1st	W	Society of Arts at 8 P.M.

ABOUT HOTBEDS.

JUST when I was thinking for the twentieth time of writing something for the Journal to which I owe so much, and when about concluding for the twentieth time also that every conceivable subject that could be of service to its readers had been amply and ably treated, I was surprised by a note from headquarters. This is the editorial mandate, for such I take it to be, and, as usual, is characteristically brief, pointed, and suggestive—"Are we never to hear from you again? Are you written out, frozen out, lost in a fog, or wanting a subject? It is not admitted you are exhausted, it is not contemplated you are ice-bound, it is not supposed there are fogs among your beautiful hills, and if you are at a loss for a subject read the enclosed."

Editors, I soliloquised, are perfect enigmas. The only paper I ever sent to the Journal that was not printed was on the very subject that I am now expected to treat; and not only so, but he who has so adroitly drawn me out knows as much about the subject as I do, and, if I mistake not, has written on it with marked ability. But to the enclosure. Here it is. "I wish someone would write plainly and clearly about hotbeds, the different materials that may be used, how they should be prepared, how the beds should be built, and all about the matter. Hundreds of people require hotbeds now, and if your skilled writers think all readers know as much about this matter as they do they are very much mistaken."

No doubt the last line of the correspondent's letter is true. It is not unnatural for those who have been engaged in a simple work for years to overlook the wants of others less experienced; and when we think of the matter we must conclude there are thousands of readers of garden literature who are unacquainted with the routine of many simplicities in the garden. Hotbed-making appears to be one of them, and simple indeed it is to many and important to all, except those unfortunates who have no means for indulging in such a valuable garden adjunct, and who thereby work to a great disadvantage.

Now to the next step. It is a bold one, but well considered. For once I intend trying to be on a level with an editor. An opportunity is afforded me for giving a Roland for an Oliver, and if I miss this chance I feel certain I shall never have another. I have said my notes on hotbeds were not printed. As I do not suppose for a moment they were equal in value to those that were written some years ago, if I am not mistaken, by the very hand that penned the above "editorial," I now transmit the article with a request that it be reprinted. Nothing

can better answer the requirements of amateurs, and I shall have the satisfaction of feeling that it is not necessary to write two articles on the same subject and only one of them be printed.

Here is what I take to be my friend's article. He has no occasion to be ashamed of it, and this, I may venture to say, if it does not satisfy I will help him to supply the deficiencies if they are pointed out.

"The position for a hotbed should be in an open and sheltered situation, where it can have full exposure to the morning sun, and possess its influence till as late as possible in the evening. If the place is not naturally protected either by a thicket or a hedge, a screen may be formed with hurdles of reeds or straw, for it is essentially necessary that it should have some shelter to preserve a steady and continuous heat in the bed.

"About a fortnight before the bed is required for use procure a quantity of good, long, fresh stable dung, and throw it together in a heap of a conical form. The quantity will, of course, be regulated according to the size of the frame. When it has lain four or five days, and has exhibited symptoms of heating, it is to be turned over with a fork, and shaken up into another heap similar to the former; but in doing so care must be taken that what formed the exterior of the former heap should now be thrown in the middle, and what was before in the inside should be brought to the outside. It is to remain in this state three or four days more, and again turned over. Every time it is turned it should, if at all dry, receive a liberal sprinkling of water during the process, through a watering-pot furnished with a rose, as this contributes greatly towards sweetening and purifying the mass, and causes it to retain the heat much longer than it would otherwise do. During this second turning the heat will have become more steady, and the mass will have been divested of much of the rank and noxious vapours with which it is charged. But to have it thoroughly 'sweetened,' it is to be turned a third, or even a fourth time, and to be thoroughly sprinkled during each turning, as the more it is worked the longer will it retain a steady heat when the bed is made up.

"There are other substances of which hotbeds are made, the more common being bark from the tanyard, refuse hops from breweries, and dry leaves collected from woods and plantations. When tan is to be used for this purpose it will require to be spread out in an open shed, and partially dried, as it is generally charged with a superabundance of moisture when first received from the tanyard. Refuse hops require to be thrown in a heap, and sweetened in the same way as directed for dung, but one turning will be sufficient. Dry leaves should consist of those from hardwooded trees, such as the Oak, Beech, Hazel, or Chestnut. They are to be collected in the autumn, laid in a heap during winter, and when required for use sprinkled with water, and trodden firmly into the bed. All of these materials will require to be boxed in with boards to form a hotbed, as from their loose substance they would not otherwise keep together in a mass.

"When the material has been prepared as directed above, mark out the space on which the bed is to be formed, 15 or 18 inches longer and wider than the frame which is to be placed upon it. At each corner of the space so marked out drive down a strong wooden stake of the same height as the bed is intended to be, and then within the boundaries indicated by the stakes proceed to make the bed. The foundation is to be formed of faggots, bean haulm, or some such materials, and on this place the longest and rankest of the dung. Then continue to build the mass by throwing up the prepared dung with a fork, with which merely beat it down, as the bed must on no account be trodden, distributing the long and the short equally over the bed, and separating all lumps that may have been formed; care must also be taken that the sides are kept perpendicular. If the dung appears to have taken too much heat in the last heap, the bed should be occasionally sprinkled with tepid water during the process of formation. After the requisite height has been attained, the sides are to be combed down all round with the fork, and all loose straws removed.

"When the bed is made up the frame is to be placed on the top, and thus it is to remain closed for a day or two till the heat rises, after which occasionally fork up and stir the centre of the bed, and tilt up the lights, to allow the rank steam to escape. Three or four days afterwards the frame is again to be removed, and the sides of the bed raised about 6 inches higher than the centre, to allow for any settlement that may take place from its weight, and to preserve a level position; at the same time stir up the surface about a foot deep, and beat it down again with the

fork, after which replace the frame. The bed being thus prepared, the surface is to be covered 6 inches thick with a mixture of one-half sandy loam and one half leaf mould, and if intended for the cultivation of Cucumbers or Melons there should be a mound 8 or 10 inches high in the centre of each light, on which the plants are to be placed.

"After the bed has been some time in operation, and the heat has begun to decline, it must be renewed by means of linings, which is done by laying hot dung at each end, 18 inches thick at the bottom, and gradually tapering towards the top. If this should prove insufficient to reproduce the heat required, then the sides are to be similarly treated. When the heat from the first linings is gone they are to be removed, and others put in their place.

"It has already been remarked that those hotbeds formed of tan, refuse hops, and leaves, require to be boxed in with boards; but there is a pit of simple and very economical construction, which may be advantageously adopted in such cases, and also as a protection for tender plants and crops during winter. It is constructed by driving down four stakes as directed for the hotbed, and building the sides of the pit the required height with sound firm sods or turf from a common or some old pasture. The sods should be a foot or 15 inches wide, 3 inches thick, and as long as they can conveniently be obtained. A pit so constructed will be found of great service for many purposes where economy is the consideration."

Now I am satisfied (that is, if the letter is printed). It is about exhaustive on making hotbeds. But in all probability if linings are needed it will suffice to place them on the wide margin of the bed. At the time when the bed is made we may expect the bottom heat to be ample without building the linings from the ground; indeed, the front at least will not need lining, and on the wide margin then a few inches of soil can be placed, to be held up with boards and covered with glass, and Stocks, Asters, and Celery, &c., can be raised better than in pots and boxes. Further, if the heat is sufficient without linings at all, the margin all round can be similarly turned to account, and no one knows the value of such a warm ledge but those who have proved it.

I am thankful to say we have no fogs here, but our "beautiful hills" are tipped, not with gold, but with snow.—A NORTHERN GARDENER.

[With pleasure we accede to the request of our able correspondent, and the more so since the letter he desires us to publish is so seasonable and good. But while we disclaim any recollection of having received the paper alluded to, we must still point out that our friend is in error as to the authorship of the article, and he will perceive that further contributions are requisite for his attaining to the fanciful pinnacle to which he aspires of being on "a level with an editor." We accept his Roland, and in return trust he will appreciate a *quid pro quo*.—Ed.]

VINES AT LONGLEAT.

(Continued from page 127.)

THE TIME FOR PRUNING.

I HAVE pointed out that the encouragement of new growths late in the season must have a prejudicial effect on the roots, inasmuch as those roots which are called into existence out of their natural season cannot have much chance of becoming mature; but I must here say, that on the other hand no amount of pinching will prevent a healthy Vine making some late roots, and as it is its nature to do so we need not try to prevent it, for doubtless it is for the purpose of fully preparing for its work in spring the organised material which I have already said is stored in its stems both above and below the ground.

This habit, too, as far as I know is peculiar to the Vine. All other fruit trees finish their root-growth with or before the fall of the leaf, and often before the Vine has finished its autumn work the roots of other trees are ready to start again on their new year's task. Knowing this I preserve the principal leaves of the

Vine as long as possible. When the top growth appears to have ceased on the yearling Vines, say in September, they are cut to the length they are intended to be left, and then after a week or two the laterals are cut off close to the stem, and this finishes the pruning, the leaves on the main stem being allowed to continue on as long as they will.

MAKING SURE WORK OF INSECTS.

After pruning, the next thing to be done according to the old routine of Vine management, as the canes are to remain, and as they have already made more than an ordinary outer bark, and the house has been used for all sorts of plants, some of which I must admit had some insects on them, would be to see if it is possible to scrape some of their outer bark off, and then to paint the nude stems with some never-failing compound. It is to be hoped that this plan has now become almost obsolete, but as I have lately found out there are many practices in the culture of the Vine which I had thought obsolete are still in force, I think it better to say a word on this point in case there may be one of my readers who still thinks this a necessity.

To the boy who entered a garden some thirty years ago with the view of learning our ancient profession, and saw for the first time this terrible peeling and scraping, it would seem that the Vine was of the same character as the Plane tree, but somehow its cultivation had so advanced that Dame Nature had not been able to keep pace with it, so it was necessary for its very existence that its outer bark should be removed by force. I may state, however, that in inexperienced hands a stop was not always made where the outer bark ended. Next there was the washing and scrubbing, then the painting with some mysterious mixture, the preparation of which was only known to one individual, whose idea seemed to be that by making it as unpleasant as possible to those who used it, he would of a certainty frighten all the insects away for the next twelve months. Suffice it to say that as the houses were not always new or newly painted, and as the woodwork, walls, surface of the soil, &c., were not operated on in so thorough-going a manner as the Vines were, the insects did show themselves again, and the operation had to be repeated in the following winter.

Some of the ingredients in this terrible mixture I have since found out did no great harm to either insects or Vines while they were both comparatively dormant, and amongst them may be mentioned sulphur (undissolved), soot, clay, and urine, but I have little doubt that softsoap or anything containing a strong alkali is injurious when applied in quantity to the inner bark of a Vine. Now I know very well that insects will sometimes attack Vines managed with the greatest skill when the houses are used, as they always may be, for other purposes than growing Grapes, and I will give what I believe to be the best and safest as well as the cheapest remedy yet introduced for making a clearance of insect pests in autumn; but I am afraid my readers will be a little disappointed when they are told that it is our old friend generally known by the name of paraffin oil, but more properly petroleum, as paraffin oil, which is a native production, is not much in use in this country now, it being superseded by the imported article called petroleum, and many of us know paraffin oil only in name. Although I am not making known a new insect-killer, I am, I believe, making known a

more efficacious way of using it, and that is by simply using it in greater quantity than has been recommended before. Everything, however, depends on the time of using it, and that is immediately after the small and immature growths are removed, and while the older leaves are still green.

There is, of course, a difficulty with late Grapes which it is necessary to keep hanging on the Vines, but in such cases if the fruit cannot be cut before the leaves fall, I should try even a stronger application than what I here recommend, and have very little doubt of success. An ounce of petroleum to the gallon of water has been stated by some writers to be too strong, but I have never found any injurious effects from it when used at this strength and kept properly mixed, unless it was on the tenderest of Ferns, or when it was used several times in quick succession and no precaution had been taken to shade the plants from the sun. Vines, however, with thick leathery foliage, as well as Peach and Pear trees in autumn, just as the leaves are beginning to ripen will bear it much stronger than this, and the proportion I use and recommend for this purpose is $1\frac{1}{2}$ oz. to the gallon.

If there is any doubt about what is meant by an ounce of petroleum, I may say that it is immaterial whether it is a weighed or a measured ounce, for as regards this article there is not a great difference, and again if it is not convenient to either weigh or measure it accurately a medium-sized wineglass may be taken for an ounce. The way I proceed is this—the water cans used holding about three gallons, a cup, bottle, or whatever may be at hand, is balanced on the scales with shot, pebbles, seeds, or something small, then a quarter-pound weight and a half-ounce one are placed with the latter, and petroleum is poured into the vessel till it brings it down, and this quantity is placed in each canful of water. The way of applying it is that which has been so often recommended—viz., to put one syringeful of the mixture into the can and another on to the plant. But you must not be satisfied with merely syringing the plants; the woodwork, glass, the walls, and everything in the house must have a thorough drenching. In bad cases where the surface soil cannot be removed I would drench that too. There is no excuse for sparing the mixture, for it costs next to nothing, and cannot harm anything at this time. The operation should be repeated in a week, and if the case is a very bad one it should be repeated more than once, and I would not give much for the life of an insect which was subject to two or three such dressings. There is no necessity to remove the bark even though it hangs in rags, the thing to do is to ply the syringe till it is all saturated.

THE FIRST CROP.

We have now seen the Vines through the first year of their existence, and all that occurs to me as likely to be interesting has been detailed with the exception of the general management of the house, and that I will leave out for the present and pass on to the second year's starting.

With the approach of spring, 1871, the Vines, having been as thoroughly ripened as it was possible to have them, naturally showed an inclination to be moving, and they were allowed to have things pretty much in their own way. The last year's growth being now stiff and strong, stakes were dispensed with, and the Vines were tied afresh straight up the trellis (we never take

even young Vines down to start them, having failed to see any advantage in so doing). They started growing I believe from every eye, from the ground upwards, with the exception of Lady Downe's, which does not appear so amenable to this style of culture, and in most cases where growth started fruit also showed. Well, then, with such a disposition to fruit why should they not be allowed to fruit? It is of course against the rules, and just what an amateur is so often blamed for, but there is no lack of vigour, and according to appearances there may be too much of it. Similar Vines in pots if well managed would produce some splendid fruit, and these, judging from appearances, ought certainly to produce some of a larger size, if not quite so well finished. Vines in pots, on the other hand, are grown only for a temporary purpose—merely to produce one crop of fruit, and then they are thrown away. But who ever saw a crop of Grapes on such Vines finished off as I have seen them finished, and did not think that the Vines, supposing they had had some chance of preparing stores for the future, would at least have borne a second crop? And so they would if the roots were given a chance during the fruiting season, but the small quantity of soil in which they are grown having become exhausted in preparing them, they have to depend mostly on applications to the surface for the perfection of their crop. To perfect this crop is about as much as they can do under these conditions, and by the time the fruit is ripe they have lost all vigour. It is true some cultivators plant them out, others shift them into larger pots or plunge them in something where their roots can ramify, but though there is a gain in size of berry it is a question if there is not a loss in point of time, and as Vines in pots are generally only grown for an early supply the time is of the greatest consequence. But my Vines, though they are like Vines in pots in appearance at the top, cannot be supposed to be so at the root, for they have had room and material unlimited. The only check they can possibly have had would come from keeping the top growth pinched; but as we know in the case of well-grown Vines in pots there is no deficiency of roots although the pinching process is severely carried out, it is reasonable to suppose that these Vines grown under more favourable conditions must at least be as well off in point of quantity, and having a comparatively unlimited root space they will have every chance of making up during the ensuing season for anything that a bunch of Grapes can take out of them. It is therefore decided to leave a bunch on each; and I may here say that they finished them off fairly well, and I believe the Vines were all the better for it, for they certainly did not exhibit any lack of vigour.

The temporary Vines, which it will be remembered form a continuous arch along the centre of the house, had five or six bunches left on each of them, and some of these did fairly well, but the large balls in which they were grown having been planted entire in the new soil there was great difficulty in keeping them moist, as the water preferably ran away into the surrounding soil which was looser; for although it was made as hard as such soil can fairly well be made close to the plants, there is a considerable amount of elasticity in new turf, and it was still looser than the root-bound material composing the old balls, and notwithstanding all the piercing and watering given these balls some of

the flowers did not set well, and on examination we found when it was too late to remedy the setting that some of the balls were as dry as dust in the centre. We ought to have placed older and more manageable soil round these balls when planting them, and made it as difficult for the water to enter it as it was to enter the balls. When the evil was detected we formed a basin with clay round the stem rather less than the diameter of the old ball, which was pierced with a sharp stick, and the water was applied only in these basins, with the result of making some good berries, but many of the bunches were loose, especially the Muscats.

The younger and permanent Vines did not suffer in this way, they being at the time of planting not so much root-bound, and besides the precautions which I have stated ought to have been taken with the soil round the temporary Vines were taken in their case, which was more important.—WM. TAYLOR.

(To be continued.)

NOTES ON VEGETABLES.

NEW EARLY CAULIFLOWERS.—Last season I had an opportunity of giving several of these a fair trial. On taking charge of the gardens here I found a number of Veitch's Extra Early Forcing in handlights, and these fully maintained their advertised character. They were dwarf and compact in growth, and produced small close heads, fit for use about ten days before the Early London. More seed of Veitch's was early in March sown on a slight hotbed, and at the same time a pinch of Carter's Defiance, Extra Early Forcing, a new Extra Early received from Messrs. Suttons, and which answers to the description of Suttons' First Crop, and Dean's Snowball. The plants resulting were hardened off and carefully planted on a good open piece of ground, but eventually they proved so much alike in every respect, that without labels it was impossible to separate them. All were fit for use early in June. Dean's Snowball has been in the trade for some time though sold at an almost prohibitive price, but what is the history of the others? Are they of continental origin and all from the same stock? Good and useful they most certainly are, and it is, perhaps, an advantage being able to procure them from different seedsmen, though I should think it preferable to have them all under the same name. All lovers of Cauliflowers, and those whose duty it is to supply the table with them, should order a packet of one of the above-mentioned varieties. They may be planted about 15 inches apart each way, and at this distance will doubtless prove a profitable crop. Snowball has proved a good midsummer and early autumn variety.

AUTUMN CAULIFLOWERS.—We were fortunate in having a good breadth of Dickson, Brown, & Tait's Eclipse Cauliflower, as these, in spite of much trouble from insect pests, produced fine heads about three weeks before Veitch's Autumn Giant. In other respects it much resembles the latter well-known valuable variety. The seed of both was sown on a slight hotbed about the last week in March. Some of the seedlings were pricked out on a warm border, the remainder when well hardened off being planted with a good ball of soil attached on a cool rich piece of ground, and were the first to form heads. In the case of early Cauliflowers small close heads are generally preferred, but we seldom hear complaints of the autumn kinds being too large providing they are not old and opening.

BRUSSELS SPROUTS.—The past season has apparently been most favourable to the production of good sprouts. It has also, in several instances, demonstrated the fact of the possibility of growing them much too large. This has been the case here with Suttons' Reading Exhibition and the Aigburth. Both of these varieties are of easy culture, being almost certain to produce a heavy crop of large close sprouts, but we next season shall have to grow the smaller if more variable imported. I hope the next "improvement" in Brussels Sprouts will be less apparent—that is to say, will in habit resemble either of the above varieties, it does not much matter which, and the individual sprouts when well grown be nearer the size of Greengage Plums than Peaches. Reading Exhibition sown on a slight hotbed during March, the seedlings well hardened off and transplanted to an open spot, the soil of which is a rich clayey loam, yielded good sprouts during August, and at the present time there are still numbers forming

under the tops, while the lower parts of the stems are clothed with a second crop of serviceable little knobs. This feature is scarcely so marked in the Aigburth, otherwise they are much alike. Have any of the readers of the *Journal of Horticulture* grown the Aigburth on rather light and comparatively poor soil? If so, they will greatly oblige by communicating results.—W. IGGULDEN, *Marston*.

VINES AND PLANTS.

I VENTURE to add a few lines with regard to the winter temperature of vinteries which has been raised by "NOR-EASTER'S" letter to the *Journal of Horticulture* of the 5th, and "WISTFUL'S" of the 19th, and carried on in your issue of the 26th ult. From my own experience I am sure that Vines do not suffer from warm treatment in the winter. In my case, certainly, Vines are only a secondary consideration; in other words I am growing Vines in plant houses, but find I can obtain a very fair amount of good Grapes without in any way interfering with my flowers.

I have two span-roofed houses, one opening into the other, 25 by 16 each, 6 feet 9 inches high at the sides or eaves, and from 12 to 13 feet in the centre. My object in making the houses was to obtain every ray of light I could. The houses run from north to south, the glass facing east and west, except that on the south side of each of the double-spanned houses I have also sloped the roof north and south so as to form a hipped roof facing south, 16 feet wide at the eaves and running up to the apex of the roof at the same angle as the side-spanned roofs. The stages for plants are 3 feet high with the hot-water pipes under them, and the sides of the houses are glazed to the level of these plant stages, which are made of wood, 11 inch red deal boards 1 inch thick cut into four. These are fastened about half an inch apart on 3 inch by 2 inch uprights, with a top rail of the same dimensions with 1½ inch by half inch strips nailed on the front edges of all the wood staging to prevent the pots from being knocked off. This stage is 3 feet wide and goes round all the houses, and I have utilised the uprights to carry the hot-water pipes on wood cross pieces tenoned into uprights and fastened into the brick walls, which are of 9-inch brick up to the level of the staging, with holes left for ventilation the width of half a brick, and the depth of two for air to circulate on to the hot-water pipes. Wooden shutters hinged on the inside, which are worked by means of cords, are used to regulate the amount of air admitted.

I have a central stage in each house, the lower part the same level as the side stages—that is to say, 3 feet from the paths, which are of brick, but the centre part is raised 1½ foot above this for larger plants, leaving about 8 feet 6 inches head-room to the apex of the roof.

I made a tank 12 feet long and 6 feet wide of brick cemented in the centre of the two houses about 7 feet deep to catch the water from the roof. This is arched over, and forms a central Vine border by raising the brick sides to the level of the staging, and the division between the two houses runs down the centre of this border. One part of this border is continued 4 feet beyond the arched top of the tank, and the only Vine I now have in the cooler house, a Black Hamburgh, is planted in this part of the border, and the roots are allowed to run at their will through the bottom of the border and into the soil, for as the soil of the garden is only a light sandy loam on a well-drained subsoil, I do not think the roots of the Vine are any the worse for wandering into the subsoil below the staging. I had at one time three other Vines in this Vine border, but as I did not wish the Vines to interfere too much with the plants I have only one now, which is planted at the south end of the inner border, and after rising to the apex of the roof it is trained horizontally along the top. Over the centre staging and the two side pathways I have planted in this border in the cooler house *Jasminum grandiflorum*, *Aloysia citriodora*, *Kennedy Maryattæ*, and *Habrothamnus elegans*. The two latter are now blooming freely, and will continue to do so till nearly June when they are cut back. This, the cooler house, I keep at an average temperature of from 50° to 60° in the daytime, and never allow it, if I can avoid it, to fall below 40° at night. On the side stages we strike the Zonal Pelargoniums for summer bedding in 4-inch pots, and have them also in 6 and 7-inch pots in bloom most of the winter.

In 1874 I enlarged the warmer house, owing to being able to get an exchange of land bordering to the east of my kitchen garden by adding a lean-to 25 by 7, continuing the eastern slope of the roof to within 18 inches of the ground level, and sunk a footpath into the house 2 feet deep and 2½ wide, making an inside border for Vines 4 feet wide, arching the wall a little below ground level at intervals of 2 feet, so as to give room for the roots of the

Vines planted inside to find their way into an outside border which I made at the same time of good turf and a fair admixture of bones. This I planted in 1875 with Muscat of Alexandria, Muscat Hamburg, Dr. Hogg, Black Hamburg, and Black Alicante. I have only left three, the first three named, and intend to let the Muscat of Alexandria, which is extending from the south part of the border, take the chief part of the upper portion of the roof, much in the same way as the Black Hamburg in the cooler house. The temperature of this house ranges from 55° to 65° during the daytime, and often rises much higher during sunny weather, but we do not keep a high night temperature, though I do not like it to fall below 45°, and it rarely does.

The glass is never shaded, and the rafters are 20 inches apart, or rather glazed with 21 oz. glass 20 by 16 put on the widest way. The rafters are 3 deep by 1½ inch—i.e., six cut out of an 11 by 3 inch deal, the glass laid in putty, but not puttied above.

Artificial heat is generally discontinued as soon as May is over, and we seldom begin fires again (unless there is very dull damp weather) till the end of August or beginning of September. As one boiler heats both houses and also another small plant house 16 by 10 feet lean-to, and two propagating houses behind the north wall of the other two houses, this, as regards artificial heat, applies to both houses. The Vines in the warmer house seldom begin growing before the middle of March, and those in the cooler about the third week in April. The canes are not taken outside, nor do I even take the trouble of tying them down.

In the warmer house I grow Abutilons, winter-flowering Begonias, Heliotropes, &c. It is rather too warm for Zonal Pelargoniums, but Primulas and Cyclamens do well in the winter till

the Vines begin growing in spring. *Stephanotis floribunda* is planted in the border over the centre tank. Although it is only a young plant about two years old it covers a trellis about 14 feet long by 3½ feet wide, and blooms well and is kept growing most of the winter months. Such plants as *Clerodendron Balfourianum*, *Allamanda Hendersoni* and *A. nereifolia*, *Dracænas*, *Bougainvillea glabra*, *Eucharis amazonica*, &c., have succeeded very well in this warmer house, and small plants of *Euphorbia jacquiniæflora* are now in bloom.

I send a drawing on a scale of one-eighth of an inch to a foot of the cross section of a house west to east in order to make my remarks more clear to your readers. What I have said does not refer to houses exclusively kept for Vines, as my chief object was to try to induce the two to grow together—that is to say, Vines that should not interfere with my plants, and at the same time to obtain a fair amount of Grapes. We had rather too many bunches on the Black Hamburg in the cooler house last year—nearly two hundred, and owing to unusually dull, wet, and cold weather in August and September they did not colour as well as I should have liked. The main rod is carried along under the centre of the roof under the iron cross bars which tie the sash bars of the roof together, and there are also two other stems running parallel to the other with side spurs. In the warmer house Muscat of Alexandria ripened the Grapes well and made some very strong canes from 15 to 20 feet long each. I have cut away only lately a Black Hamburg from the cooler part of this house in order to make more room for Dr. Hogg, as it made three canes from 18 to 20 feet long from nearly the base; and as we have plenty of Black Hamburgs in the coolest house, and it is a

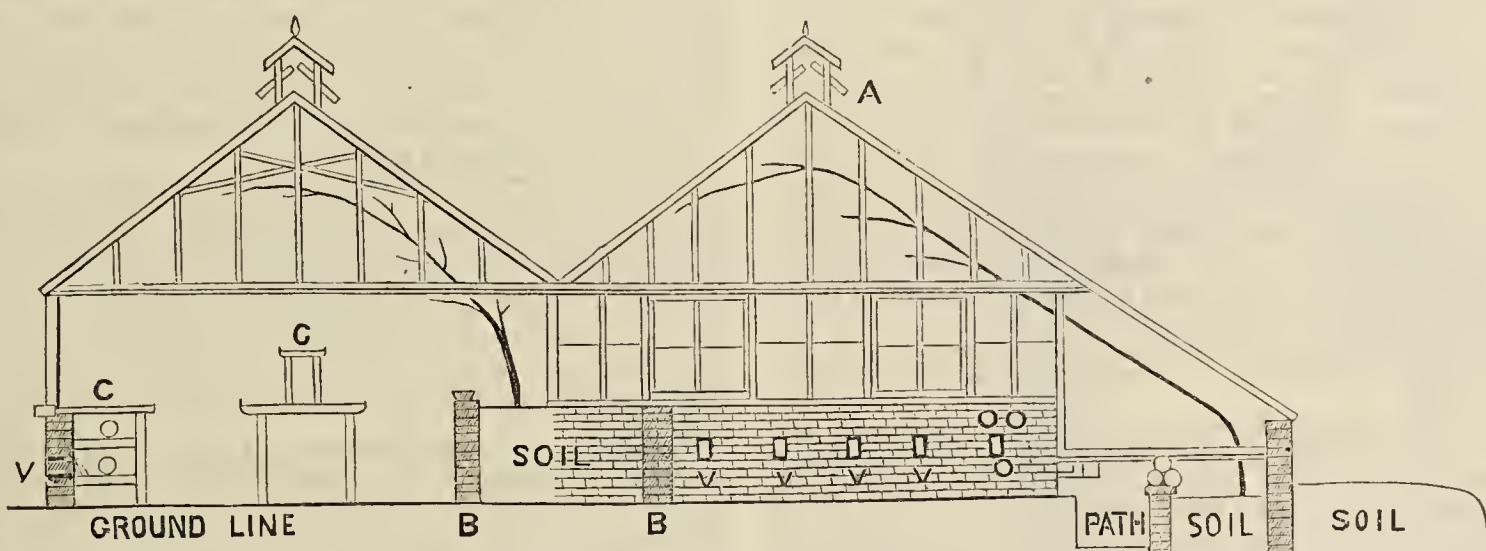


Fig. 30.—VINE AND PLANT STRUCTURES.

A—Roof Ventilators. V—Ventilators in the Brickwork. B B—Brick Walls of Vine Border.

Grape I do not much appreciate, or at all events do not care for it as much as the Grapes in the warmer house, I have sacrificed it for the others.

Your readers will, I think, understand from these remarks that in the cooler house the Black Hamburg occupies the upper part of the house and extends from south to north along the roof under the iron cross braces which fasten and connect the rafters together. The leaves are about 12 to 18 inches from the glass, but as I never shade or whitewash the glass the canes become thoroughly ripened, and the shade from the foliage of the Vines interferes but very little with the plants. In the warmer house the Vines which are planted in the east side of the house run up to the top, a distance of about 20 feet from the border to the roof, and then are allowed to grow as far as the path on the opposite side of the house—i.e., about 6 feet of roof, but do not interfere with the south light except quite at the upper portion. I find generally the Vines in this warmer house have ripened and lose their leaves by the middle of October, and in the cooler house about three weeks or so later. Very often we have no fires during June, July, and August. I had none this year till the end of August, when, owing to damp and dull weather, it was advisable to start the fires to ripen the later Grapes and to mature the wood.—C. P. PEACH.

DONALD BEATON ON THE GLADIOLUS.—“A VICTIM” (page 114), refers to my observations on *Gladiolus* culture, and quotes Donald Beaton of twenty years since with seeming approval. I think I may fairly summarise the rather long quotation referred to by saying Donald Beaton commends planting-out and leaving the corms in

the bed or borders, protected by leaves in winter, but it is strange he would plant in “cocoa-nut fibre refuse,” which I never considered a feeding material. What would Mr. Kelway or any large grower think of growing their beautiful and expensive hybrids of *Gandavensis* in an open border in cocoa-nut fibre, and for “seven years undisturbed?” The last sentence of this quotation in the *Journal* deserves to be treasured up, however, by every “victim” to *Gladiolus* losses—“Half English-grown *Gladioluses* are only three parts ripe from the lateness of the present time of planting.” This is the great secret of the losses, and the remedy is early planting (for starting in pots in a greenhouse), and lifting those not withered, and allowing them to slowly ripen under full exposure. I shall almost immediately place my best hybrids in pots, and transfer to the open by-and-by. In the “*Horticultural Register*” fifty years ago the culture of *Gladioli* was described as exactly that of *Hyacinths*. They were potted in October and allowed to slowly grow on in a greenhouse. This would certainly give plenty of time for the foliage to ripen. What has become of *G. pudibundus* figured in the second vol. of that publication, and if it is lost? It seems different from any known variety now.—W. J. M.

THE PROPAGATION OF AUCUBAS.

NOT many years ago *Aucubas* were propagated by means of layering during the autumn, winter, and spring months—those rooted being planted out during the following planting season. For this purpose a stock of large plants was generally kept. The plants produced by this means were not always shapely young specimens, and the system on the whole has nothing to recommend it, and in consequence has entirely died out. Propagating is now

effected by means of cuttings, which is both a quicker and readier system, and the plants much sooner become neat little bushes. The cuttings can be taken any time between October and March, the earlier the better, and the greatest success may be anticipated, as nearly every cutting may be relied upon to root, provided the treatment after insertion is judicious. The wood selected for the cuttings should be from the end of the shoots, and about 3 inches in length, strong sappy growths being avoided. In preparing them cut through the stem with a sharp knife below a joint, and remove the lower leaves. I do not know that any advantage is gained by removing and shortening the foliage, further than it allows them to be inserted more closely together than would be the case if the foliage was retained. Glazed boxes must be in readiness to receive the cuttings after these have been inserted in 8-inch pots, well drained and filled with sandy loam, and a layer of river sand on the surface. The cuttings can be placed thickly together in the pots and be well watered after insertion, and the frames afterwards kept close, affording shade when needed. Growth commences as the roots form, and after they reach this stage the lights may be removed during gentle rains. As the season advances the frames can be dispensed with entirely, and the young plants placed out where they can remain at least two years. Planting out is best done before the roots become matted in the pots. A good soaking of water should be given when planting out in dry weather, and after this, as a rule, the young plants need no further care in that respect.—W. B.

NOTES ON MUSHROOMS.

IN reply to Mr. Welsford, page 110, in reference to Mushrooms dying, I should say I consider in the first place his house is kept far too hot. His manner of spawning the beds differs from my own, and I believe many others—viz., in beating it up so small, but as the spawn ran and produced Mushrooms that could not cause the failure. We have been very fortunate with Mushrooms here this winter. The beds are composed of the same material named by your correspondent, but are generally spawned a few degrees lower than the temperature given by him (80°), although I have known the temperature to rise to 100° without injury, but then the beds have not been covered with soil. The spawn bricks are broken into not more than six pieces, and placed about an inch under the dung of the bed and made very firm around them. When it is thought that the temperature of the bed will not rise it is earthed over with about 2 inches of common garden soil, of a suitable texture to admit of its being made firm without being too tenacious.

All that is necessary afterwards is to keep the house cool and moist, but must not be brought about by deluges of water, but keep what moisture there is in from escaping by rendering the house almost airtight. As a proof that it is not necessary to have a high temperature the fact may be mentioned that I have had Seakale, Rhubarb, and Chicory in the house for weeks to grow, but it has made no progress, and I have been compelled to place it in other quarters, and in this house we have gathered on an average 6 lbs. of Mushrooms per week from one bed since the first week in November, and it is now white with them. They are large and solid, very different from some I have seen grown in heat, which are light, and seem to hang by little threads. I have not seen the temperature of my Mushroom house above 55° the whole of this mild winter.—C. W.

NOTES ON PRIMULAS—CULTURE.

I ENCLOSE you two photographs of Primulas. You may form some idea of the size and beauty of these plants from the fact that most of the flowers of the plant numbered 1 measured over 2 inches in diameter. This strain of white Primula I have had now for several years came originally from Messrs. J. Carter and Co. The flowers are pure white, and the variety is peculiar in having dark stems and leaves. I have had plants in small 32-pots measuring 2 feet in diameter, and trusses of flowers 18 inches in diameter. No. 2 photograph shows specimens of Williams' magnifica. I cannot speak too highly of this variety both as regards distinctness of flowers and beauty of foliage. I also send a flower of Bull's strain, a beautiful colour, and of good size and robust habit. The next I call my Polyanthus Primula. I have grown it now three years, and as the flowers increased in size yearly I hope to have it good next year. This plant is generally admired.

Cannell's Crimson deserves special notice, though I fail to obtain the flowers large, even when the plants receive the same treatment as the others. Cannell's Pink is also quite a gem in its way. I like it, though it needs a light position, or the colour will be very pale.

Perhaps a few remarks on my method of culture will not be unacceptable, as the season for sowing is approaching. My first sowing is made the third week in March in light sandy soil in a Cucumber frame, covering the seeds with moss or paper when I have watered the seed, as by thus doing very little water is required until the seed germinates. As soon as the seedlings appear gradually remove the covering. I do not keep them in strong heat long, but accustom them to a lower temperature until they are placed in a cool vinery. As soon as they can be handled either prick them out into pans or pot them singly.

Though the Primula likes plenty of light, the direct rays of the sun injure it so much that if grown in a frame I advise judicious shading. Here I have them in large vineries. Much has been written in reference to using vineries as plant houses, but I consider, as I always did, that plants can be grown in a large vinery without prejudice to the Vines, but in a small house the result is very unsatisfactory. The best of my Primulas are now, and have been for some two months past, blooming in a span house 50 feet long by 20 wide, where the Grapes were cleared out the last day of January. To manage this, however, especial care is always taken in keeping the house clean, no water being carelessly thrown about. It is impossible to keep or grow Grapes after the colouring time with crowded bedding plants which are watered indiscriminately. With regard to the temperature required by Vines and Primulas I can only say, Keep the frost out of house and both will be right.

The Primula I consider the most useful plant for windows. In my own parlour, where there is a fire three times a week, we have had two plants at least two months, and they are still good.

I prefer a light sandy compost with peat or leaf soil, and employ small pots. I had in the autumn some good plants in large 60's, and they bloomed well. Several were transferred to 48's, and in November I selected a few of the finest coming into flower and shifted them into larger pots. The result was disappointing, as the blooms became small. I then decided to remove the trusses and let them start again, and this proved successful. The photographs show two of these plants.

In supplying water care should be taken that the soil is well soaked at least weekly, as nothing injures them more than surface watering, especially when the pots are full of roots. A stiffer soil containing more loam was employed for the best plants; but even though you give them efficient drainage and a fairly good soil, much depends on the attention given to them when growing. As soon as the plants are thoroughly established and they commence blooming a weekly supply of weak liquid manure will prove beneficial provided the soil be not dry at the time of the application.

Primulas should not be crowded, and yet it is not necessary to have them upon a shelf to be excessively dried. My plants stand on the Vine border 8 or 9 feet from glass, yet they are quite satisfactory. A good plan to insure a succession of blooming plants is to sow seeds twice or three times, the last sowing being made in May. Should strong plants be wanted remove the first flowers. I do not know if there is anything new in these remarks, but having seen Primulas exhibited in London I particularly noted the size of pots, plants, and blooms, and when comparing these with my own plants I was very well pleased with the result.—STEPHEN CASTLE, *The Vineyard, West Lynn.*

[All the flowers sent are very fine, and your descriptions of them are accurate. The white flower No. 1 is singularly fine. The leaf and flowers of what you describe as Bull's strain are remarkable for size and substance, the former being 6 inches in diameter, and the latter stout and rich. Cannell's Crimson is extremely bright, and Cannell's Pink (an improved form of lilacina) is distinct and pleasing. Your Polyanthus variety is striking alike by its velvety maroon much-crimped petals and much-inflated calyx, the latter being more curious than beautiful. The photographs show satisfactorily that the plants have been admirably cultivated.—ED.]

CABBAGES CLUBBING.

SEEING so many inquiries from correspondents in the *Journal of Horticulture* for a remedy for this pest, I am induced to send you my experience. Ten or twelve years ago I bought an allotment garden, which, judging by the luxuriant growth of the weeds, I thought would suit vegetables well. I set a man to clean it, had all the weeds burnt, and as there was plenty of manure in the ground it did not need more. I had some Cabbages, Cauliflower, and Brussels Sprouts planted in July. They grew very slowly, and after a short time the leaves became flabby and drooped. I soon ascertained they were badly clubbed. As a remedy some advised lime, others gas lime. I tried both, but with no effect.

At last a friend suggested trying some old mortar rubbish—that from buildings which are being taken down. I obtained two horse loads, passed it through a half-inch-mesh riddle, and the lumps I placed in a cart rut for a week, and these were soon reduced. I then had it placed on the ground about 3 inches thick. It was dug over three or four times to mix it, and Cabbages were then planted. They quickly grew well and exhibited no signs of club roots. I have had several more loads placed on, and I think it very valuable and a certain cure for club. If any of your correspondents are troubled with it let them try a small plot of ground with Cabbage plants and send you the result.—H. H., *Birmingham*.

ECONOMY IN HEATING HOUSES.

It is a great pity that more interest is not expressed (if felt at all) in such interesting letters as Mr. Iggulden's at page 65, on "Wasteful Modes of Heating," and confirmed by Mr. Gilbert at page 108. Unfortunately the suspicion which most gardeners have of advice from a heating engineer (whose very occupation compels him to know many more varieties of boilers than is possible with them) prevents their seeing and remedying this waste as a rule, because they think his advice must be interested. Of course it is interested or it would not be given, for is it not to the interest of the engineer to make his appliances 40 per cent. more economical (if possible) in their use or work, so that he may secure three orders where he would only get two otherwise? The addition of a brick, or, better still, an earthenware flue, for utilising the waste heat of furnace is good and is frequently carried out; it also fails in many cases, and often the cost is not repaid by the saving in fuel. If boilers and their flues were properly constructed there would not be enough heat left to warm the house 2° by means of the flue inside. It must be borne in mind that some heat must be carried up the chimney, or you will not have sufficient draught to keep the fire alight; and if the furnace is so constructed and the damper regulated that but little heat can escape, and you attempt to carry this a distance of 30 feet along a flue, what is the result? Simply this, that you have to burn 20 to 30 per cent. more fuel to heat the flue and gain a necessary draught. The greatest waste of heat occurs in the setting of the boilers with their outside flues, which absorb and disperse outwards half the heat from fuel burnt during the first hour or two of lighting, and about one-third the heat afterwards.

If anyone is having a common saddle fixed and purposes having an inside flue as well, let him try it without the flue round the boiler. Set the bars and lower part as usual, block up the end with bricks and fireclay so as to leave a space of 2 or 3 inches only along the inside of arch for smoke and heat to escape by; take the greenhouse flue direct from this small opening, and no more fuel will be burnt than with the traditional outer flues. The outside of boiler must of course be covered in, but do not let the bricks touch it by an inch or two, filling this space in with sand, old plaster, or some simple non-conductor of heat. Soot is as good and easily obtained as anything else.

The three boilers named as used by Mr. Iggulden are the most wasteful of fuel I know, and I can easily heat another house containing one-third to one-fourth the piping now attached to such boilers if large ones, with the heat at present lost from their setting, at as little cost as a separate boiler would be for the same quantity of pipes which would require another fire. What would be thought of a boiler and setting as compared with these, near which a thermometer is not raised 5° when the boiler is in full work, and the whole 12 feet of flue is inside the room 12 feet square only? and yet there are such.

There is such a thing, too, as being "pound foolish and penny wise," to reverse the old proverb. Take a house 30 feet long heated by a boiler and pipes; there is a waste of fire heat, and it is decided to put a flue in to utilise it. The flue costs £6 to £10; fuel saved in one year amounts to £1, possibly £2; where is the gain in seven years? Before which time the flue has had to be repaired several times, and you have lost many plants through the escaping fumes. An extra hot-water pipe would have cost no more than—not as much sometimes—as the flue, and it would have utilised the spare heat by giving the boiler more work to do without increasing its fuel. An underworked boiler is occasionally as wasteful as an overworked one. Very much could be said on the latter point, but I have taken up too much of your valuable space now, I fear, and leave it together with the question of the pipes for a more convenient season, or for others to dilate upon.—B. W. WARHURST.

THE FOUNTAINS AT VERSAILLES.—According to the report of the architect of the Palace of Versailles, the basins of the famous

fountains are now in so deplorable a condition of ruin and decay, that the periodical displays so familiar to the Parisians and to all visitors to their city must ere long, if some effort is not made, entirely cease. Many fine effects have for some time disappeared. Meanwhile bas-reliefs in marble of high artistic value are stated to be lying scattered about the park overgrown with grass; and allegorical subjects, some of which are masterpieces of the sculptor's work, are in danger of complete destruction.

NARCISSUS BULBOCODIUM VAR. CREWEI.

NEARLY two years ago the Rev. H. Harpur-Crewe sent to me a portion of his bulb collections in Spain, in the shape of four or five varieties of the "Hooped Petticoat Daffodil," *Narcissus Bulbocodium*. Amongst these *N. Graelsii* (a whitish-flowered var. near *N. monophyllus*), *N. nivalis*, *N. Bulbocodium* (type), *N. citrina minor*, and the present variety have flowered. Of all *N. Crewei* is the most distinct in general port, its marked dwarf-



Fig. 31.—*Narcissus Bulbocodium* var. *Crewei*.

ness, especially in the shortness of its leaves, and in their being decidedly flat rather than subcylindrical in section. In the latter particular they more nearly approach those of Mr. G. Maw's, *N. rupicola*, a distinct form of *N. juncifolius*. As to the precise habitat of this pretty little plant I am indebted to Mr. Crewe for courteous information. Speaking of *N. nivalis* and *N. Graelsii* Mr. Crewe states that both species grew in the same meadow near Naval Peral in abundance, but not intermixed. *N. Graelsii* was confined to the high dry part of the field, while *N. nivalis* grew in the portion which was almost a bog, the collectors being over shoe-tops in water when digging it up. A small form of the type, which provisionally has been called *N. Bulbocodium minor*, was also found in quantity by Mr. Crewe in moist meadows near to the city of Leon.

Anent the culture of these yellow "Hooped Petticoat" Daffodils, it is very suggestive to hear of their growing in moist and even boggy parts of meadows. In gardens we generally find that the driest and most sandy part of a garden suits them best in our climate, if so be that they ever are trusted out in the open border.

In our old garden here the only position where these bulbs succeed permanently in the open ground is on a sandy border under a standard Holly, the roots of which keep the border very dry. Not having the hot sunshine of Spain and southern Europe which is there able to ripen the bulbs even in what at some seasons of the year is very wet ground, it follows that a drier course of treatment is here more successful than that which the native conditions would seemingly warrant. No doubt these and many other delicate bulbs, which seem just a trifle too tender for our cool and moist climate, would more often succeed if planted in sandy soil at the foot of a sunny wall or in sunny positions under a hedge or tree, whose roots and shade combined would produce a drier and so much warmer soil for them.

The bulb is as large as raven's eggs, of a dark brown or blackish colour, bearing three to five leaves. Leaves 3 to 5 inches in length, nearly an eighth of an inch in breadth, glaucous, flattish, or lunulate in section, 6-striate behind, and with distinctly serrulate or scarios margins. Scape 3 to 5 inches high. Flower 1 to 1½ inch in length (including the ovary), of a bright golden yellow colour. Anthers deep golden yellow. Style much exserted. The short scariously margined leaves and small flowers readily serve as distinction, and the plant blooms earlier than the type under precisely similar conditions of culture. As contrasted with the typical *N. Bulbocodium* the differences in leafage are abundantly evident, those of the type being 10 to 20 inches in length and sub-cylindrical in section, and of dark glossy green colour, very smooth to the touch.

It is undoubtedly nearly allied to the *N. nivalis* of Grælls (v. "Indic. Pl. Nouv.," p. 9), a dwarf Spanish [species or variety from which *C. hedraantha* (v. "Webb & Held in Blanc. Exsic.," n. 2281), differs only in its having a sessile ovary.—D.



WE regret to learn that in consequence of the inclement weather of the past two years and the nature of the experiments of MR. CLARK, THE RAISER OF THE MAGNUM BONUM POTATO, in endeavouring to effect still further improvements, that his resources have been seriously crippled. Under these circumstances we have the pleasure to announce that Mr. Clark's friends, appreciating both his private as well as his public merits, are endeavouring to raise such a sum of money as they trust will completely remove his temporary difficulties, and enable him by his persevering endeavours to yet further benefit the public at large. It is beyond doubt that by raising the Magnum Bonum Mr. Clark has benefited thousands of cultivators who, by growing this variety, have had valuable crops practically free from the disease in ground and during seasons when most of the ordinary varieties succumbed to the malady. We direct attention to the subscription list in our advertising columns, which is appropriately and generously headed by Messrs. Sutton & Sons of Reading with a substantial contribution, and we recommend Mr. Clark's case to the consideration of our readers. Mr. Clark's portrait with the history of the Magnum Bonum Potato appeared on pages 485, 486, vol. i., new series, of this Journal, the issue of November 25th, 1880.

— THE INTERNATIONAL POTATO EXHIBITION will be held as usual in the Crystal Palace, Sydenham, on Wednesday and Thursday, September 20th and 21st. The Lord Mayor and Sheriffs have promised to attend in state on the opening day, and will take luncheon with the Committee and the Judges.

— WE regret to have to announce the death of MR. DANIEL MACKENZIE, for forty-six years the respected traveller and representative of Peter Lawson & Son, and of the Lawson Seed and Nursery Company (Limited) of Edinburgh. Mr. Mackenzie had reached the age of seventy-three years, and we believe enjoyed good health till the 15th inst., when he died suddenly at Spring Valley, Morningside, Edinburgh. Mr. Mackenzie's father was

gardener first to Sir William Molesworth at Pencarrow in Cornwall, and subsequently to the Earl of Breadalbane at Taymouth Castle, where he died. In early life Mr. D. Mackenzie held a confidential position in the house of William and John Peacock, once nurserymen at Edinburgh, and really formed a connecting link between the past and the present generation of gardeners.

— THOUGH not quite at their best the CINERARIAS AT REDLEES, ISLEWORTH, the seat of Mrs. Watson, are fast advancing, and will in a week or two form as fine a display as those annually provided by Mr. James for some years past. There is great diversity of colours—rich deep shades, and delicate tints, blue, purple, crimson, and maroon, the flowers possessing the remarkable substance, breadth of florets, and rounded outline which distinguish this noted strain. Several new seedlings are developing and appear of very promising merit. One with exceedingly rich crimson flowers is particularly noteworthy. An older form but remarkably distinct has broad rich purplish blue ray florets and a white centre, the contrast having a peculiar appearance.

— MR. R. P. BROTHERSTON sends us some extremely fine spikes of LILIES OF THE VALLEY from home-grown plants lifted from beds and forced this year for the first time. They are very handsome, each spike bearing fourteen or fifteen very large bells possessing powerful fragrance, and are far superior to any we have seen from imported roots. The foliage is very luxuriant and bright green. The same correspondent also sends flowers of the "Blue Marguerite" (*Agathæa cælestis*) very bright and pretty, and flowers of the fragrant *Dendrobium aurum* (*heterocarpum*), one of the most useful and beautiful of winter-flowering Dendrobes.

— "DUBLINENSIS" writes—"Of ORCHIDS IN BLOOM our gems just now are *Cœlogyne cristata* var. *citrina* (*Lemoniana*), *Phalæopsis Schilleriana*, two or three good forms; *Cattleya Warscewiczii delicata*, one of the most chaste and lovely of all *Cattleyas*; *Odontoglossum Rossii majus*, a fine form; *Oncidium cucullatum atro-purpureum*, a fine dark-spotted variety, which has been in bloom for ten weeks and is yet fresh. The old favourite *Odontoglossum pulchellum majus* is now sweetly pretty, so are two or three *Angræcums* and Dominy's Lady's Slipper (*Cypripedium Dominionum*), which produces shoestring-like petals dangling beside its satin-lined slippers."

— "BETWEEN thirty and forty years ago," writes "R. C. O.," "Covent Garden was well supplied with cut blooms of ROMAN HYACINTHS of a creamy white colour, very fragrant. I suppose they have disappeared to give place to the pure white now in cultivation. They generally came in about Christmas, and were the most useful flowers at that period. There was also a single blue *L'Ami du Cœur*, which could be had in flower at the same time."

— WE are informed that the SCOTTISH PANSY SOCIETY will hold its thirty-eighth annual Exhibition in the Society of Arts Hall, Edinburgh, on Friday the 23rd June next. This is the great Pansy Show of the year, and fanciers from the south who may have the opportunity should visit it, as the number of blooms shown is always large and of fine quality.

— WE have received from Mr. Bradley of Southwell a number of LABELS made of different kinds of wood and protected with a composition. They are neat and apparently durable, the names being stamped in the surface with a brand. We will try some of these labels; but the best mode we can suggest of having their merits tested is to submit the labels for comparison with those of other makers in the collection that Mr. G. F. Wilson of Heather-side, Weybridge, is endeavouring to form.

— A CHARMING and useful little Orchid is *LÆLIA ALBIDA*,

not only on account of the neatness of its pretty white flowers, but also for their remarkable duration at this season of the year. We recently saw a plant which we were credibly informed had been in flower for the past five weeks, and it is still in admirable condition. It thrives well in a small basket; and suspended near the roof in the Cattleya house, a slightly cooler quarters, it grows and flowers freely, requiring little attention beyond the customary supply of water.

— ANOTHER handsome member of the same genus, *LÆLIA ANCEPS DAWSONI*, is similarly attractive now in many Orchid houses. The petals in this variety are broad, rounded, and pure white, as are also the slightly more narrow sepals. The lip is chiefly white, but is most delicately veined with rich crimson, the lines radiating from the centre to the margins. It is now generally known that this is one of the most beautiful forms of the variable species *L. anceps*.

— WE learn that the DUNDEE HORTICULTURAL SOCIETY will hold a grand Floral Fête in the High School grounds, Dundee, on August 31st and September the 1st and 2nd of the present year. Prizes will be offered in 199 classes—namely, 60 for plants, 46 for cut flowers, 40 for fruit, and 53 for vegetables. Liberal prizes are offered in all the chief classes. On the same date the East of Scotland Bee-keepers' Association will also hold an exhibition in connection with the above.

— AS an example of the ENTERPRISE OF SEEDSMEN and the efforts they make to render their wares attractive to the public, we may allude to a sample package of seeds that has been sent to us by Messrs. Coventry & Carstairs of Gray's Inn Road, London. The package contains forty small packets of flower seeds, each not only containing printed instructions relative to the height, and time, and mode of sowing, but also a coloured representation of the flower in miniature. We have seen similar examples, but none better than these before us.

— WE have received two more parts of Messrs. LETTS' POPULAR ATLAS. The work continues to maintain its good reputation for excellence of execution and correctness. The maps are really admirable, and are accompanied with useful statistical matter. Part 23, maps of Paris, Sweden, and the German Empire, and 24 of Russia, Berlin, Italy, and part of Norway.

— SOME growers have made the rather unpleasant discovery that what they had expected to be *CHIONODOXA LUCILÆ* have in some cases proved to be their old friend *Scilla bifolia*, and it is not at all improbable that others will arrive at a similar conclusion as the foliage and flowers develop. The Snow Glory has acquired so great a fame, and is apparently so much in demand, that several small traders in hardy flower roots, bulbs, &c., in Covent Garden Market display boxes containing bulbs supposed to be the *Chionodoxa*, and to which attention is directed by labels of formidable dimensions.

— REFERRING to the DIAMOND TUBEROSE, concerning the original description of which there has been some doubt, the "American Gardener's Monthly" gives the following explanation.—"Nanz and Neuner say they were aware that an attempt was made to impose on two eastern firms a kind which was 'far from being the Diamond which we offer.' They 'know it to be just as they represented it,' except that it was an error to say as we did, '5 to 8 inches;' it should be '15 to 18 inches.' But, since the question has been raised they decided not to sell till they had exhibited plants this summer, so that all could see for themselves."

— IN the same magazine it is stated that a DOUBLE ROSE-COLOURED BOUVARDIA has been obtained by a grower in Louisville. It is said to be a sport from the double white Alfred Neuner, and is stated by the editor to be very beautiful and quite as desirable as that variety.

— THE usual monthly meeting of the METEOROLOGICAL SOCIETY was held on Wednesday, the 15th inst., at the Institute of Civil Engineers, 25, Great George Street, Mr. J. K. Laughton, M.A., F.R.A.S., President, in the chair. The following gentlemen were balloted for and duly elected Fellows of the Society—W. Aronsberg, J.P.; W. G. Birchby; J. Rand Capron, F.R.A.S.; P. Crowley, F.Z.S.; W. W. Culcheth, M.Inst.C.E.; D. Cunningham, M.Inst.C.E., F.S.S.; S. Cushing; W. N. Greenwood; E. Kitto; J. Mansergh, M.Inst.C.E.; G. Oliver, M.D.; H. S. H. Shaw, Assoc.M.Inst.C.E.; G. W. Stevenson, M.Inst.C.E., F.G.S.; and W. H. Tyndall. The papers read were—1, "Notes of Experiments on the Distribution of Pressure upon Flat Surfaces Perpendicularly Exposed to the Wind," by C. E. Burton, B.A., F.R.A.S., and R. H. Curtis, F.M.S. 2, "The Principle of New Zealand Weather Forecasts," by Commander R. A. Edwin, R.N., F.M.S. 3, "The High Atmospheric Pressure of the Middle of January, 1882," by H. Sowerby Wallis, F.M.S. The electrical thermometer, lent by Messrs. Siemens Bros., for observing the temperature of the air at the summit of Boston church tower, was also exhibited.

— MESSRS. CASSELL, PETTER, & GALPIN have sent us the following—parts 16, 17, and 18 of "PAXTON'S FLOWER GARDEN," the interest of which is well sustained. With the last part the first volume is completed. Parts 12, 13, and 14 of "THE ILLUSTRATED BOOK OF PIGEONS," by Lewis Wright, are well illustrated with admirable coloured portraits of the various varieties. Parts 11, 12, and 13 of "THE ILLUSTRATED BOOK OF BALLADS" contain some of the most beautiful as well as the most humorous in our language, and the illustrations are of a very high order. Parts 49, 50, and 51 of "SCIENCE FOR ALL," a highly instructive popular work. Parts 57, 58, and 59 of "FAMILIAR WILD FLOWERS," and parts 34, 35, and 36 of "FAMILIAR GARDEN FLOWERS," are continuations of two very useful and well-illustrated works, which we have frequently had occasion to commend.

— "WE hear," says the "Journal of Forestry," "that a scheme has been submitted to the Government for the creation of a FOREST SCHOOL FOR ENGLAND in the neighbourhood of London, and another for Scotland in Edinburgh. It is of great importance to the country that a forest school should be established with the least delay possible, but the exact locality of its head quarters is a matter of less consequence where the conveniences for travelling are so ample. To some London has many attractions as being the great centre of the empire; but for educational facilities and easy access to the best examples of forest management in Great Britain, Edinburgh has undoubtedly greatly superior claims. From our own experience we know that forestry and forest management receive more than double the attention of those interested—landowners and foresters—in Scotland than it does in the whole of England. As a rule, woods on most estates in England are looked upon as of secondary importance in the annual return received from the land, while in Scotland the returns from woodlands are held to be of primary importance, and must come in as regularly as the rent from arable land. Exceptions are easily enough found, but at the present time the difference between the systems generally followed in each country is as we have stated, and there can be but one opinion about which is the best system in which to train young foresters."

LILIES OF THE VALLEY AT FULHAM.

IN one of the houses that has formerly been used as a propagating house at Messrs. Osborn & Sons' nurseries are to be seen some remarkably fine examples of Lily of the Valley. The clumps are placed closely together on a bed composed of decayed tan about 2 feet in thickness without any bottom heat. The bed is about 12 feet long by about 3 feet 6 inches in width. Over the crowns of the Lilies is placed about an inch depth of the above

material, and on this was placed 3 inches depth of rough or common moss, and when the Lilies had grown about an inch above the tan the moss was removed. The temperature of the house ranges from 50° to 55° by day, falling a little lower at night. Mr. Evans told me the clumps were put into the bed about a month ago. The flower spikes are produced in great numbers. I counted between sixty and seventy spikes to the square foot, the bells being of extraordinary size, and averaging twenty bells on a spike. It seems to me a very simple method of obtaining a good supply of these very valuable flowers, especially where there is little space and pots are few, or if wanted in pots the clumps can be very easily removed from their situation.

In the same house were some very fine examples of Lilac Charles X., producing very large heads of flower; also some Azalea mollis, which are very promising. A few Hyacinths and other bulbs were advancing, amongst which a bulb of Princess Clotilde had eight spikes of flower, each with twenty-five to fifty bells on a spike, when open will make quite a unique specimen. Mr. Evans says he has not seen so many flowers produced on a single bulb before.—P.

ORCHIDS IN FEBRUARY.

THE Orchids in cool house are very gay at present, while the other divisions are promising a fine display shortly. The temperatures to be maintained now will be 60° in the warm house, 55° in the intermediate house, and 50° in the cool house, with a rise of 5° during the day. The following are the most attractive species and varieties flowering during February:—

Cœlogyne cristata is now in fine condition. As these cease flowering they should be removed to cooler quarters and top-dressed with sphagnum, peat, and potsherds, and watered very sparingly at first. In cases where they require a shift give them a good one, as it is a plant which does not like to be moved often. These will require more water than those top-dressed only, and should not be allowed to become dry.

Cypripedium barbatum, *C. b. Crossii*, and *C. biflorum* are showing their spikes, and should also be top-dressed with fresh loam, peat, and sphagnum. *C. caudatum* is pushing up its spikes, and should have plenty of water now. Any decayed moss around the roots ought to be removed. *C. Harrisonianum*, a fine hybrid between *C. villosum* and *C. barbatum*, of which there are several varieties, the darkest being the best, is now in bloom. It is a very free grower. Its dark flowers resemble those of *C. villosum*, while the foliage is that of *C. barbatum*.

Dendrobium chrysotoxum is producing its flower spikes, and will require careful watching, as it is liable to be attacked by green fly. It should now be removed to the lightest end of the intermediate house, and receive a good supply of water at the roots about twice a week. *D. nobile* is flowering profusely. In cases where the plants have been retarded and the buds are beginning to colour they should be placed in the warm division and well watered, so as to develop the flowers.

Maxillaria grandiflora has ceased flowering, and should be at once repotted in peat and moss with good drainage, and replaced in the cool house. *Masdevallia amabilis*, *M. Davisii*, *M. ignea*, and *M. Veitchii* are showing their flower spikes, and should be frequently examined in order to capture slugs, which commit great havoc amongst them now, as do also the green fly, which cause the foliage to curl. *Miltonia cuneata*, the white-lipped *Miltonia* with brown sepals and petals, is blooming well and lasts a long time in perfection. The *Miltonias* are best grown in the Cattleya house with a liberal supply of water.

Odontoglossums.—This is a good time to repot those which require shifts, and top-dress others, such as *O. Alexandræ*, *O. Andersonii*, *O. Chestertonii*, and *O. cirrhosum*, which have ceased flowering. *O. Hallii*, both the yellow and white-lipped varieties, are very attractive. Their long spikes—in many cases two from one pseudo-bulb—bearing from nine to twelve flowers, which are of a beautiful yellow colour, irregularly spotted with chocolate. *O. luteo-purpureum*, of which there are several varieties, is also in perfection. *O. maculatum* remains a long time in bloom. The sepals and petals are brownish yellow with a light yellow lip spotted with purple. *O. Pescatorei* is promising a rich display. *O. pulchellum*, with its pure white Hyacinth-scented flowers somewhat resembling a spray of Lily of the Valley, is in full beauty, as is also *O. triumphans*, producing a long spike bearing about ten beautiful golden yellow flowers spotted with brown, and having a white lip rosy at the base.

Oncidium concolor is showing its flower spikes, and should be carefully examined to protect it from insects. *O. Forbesii* is commencing growth, and requires to be rebasketed or repotted

and placed in the cool house. *O. Marshallianum* is forming its spikes, and should be also attended to.

Phalenopsis amabilis, *P. grandiflora*, and *P. Schilleriana* render the warm house gay. The flower spikes ought not to be allowed to remain too long on these plants, as they exhaust them. After the flowers are cut fresh compost should be added and the plants sparingly watered at first.

Pleiones, if they have not been repotted, should be seen to now, giving them plenty of drainage with a compost of peat, loam, leaf soil, and sand, with a covering of moss on the top. They do well in shallow pans suspended near the glass, and at first sparingly watered until the roots become firmly attached, when a little liquid manure may be given.

Saccolabium violaceum is in fine condition this month, bearing fine spikes of ivory-white flowers tipped with violet, and with a mauve-coloured lip. *S. Harrisonianum*, with its large pure white flowers of fine fragrance and distinct light green foliage, is now very attractive.—ORCHIDIST.

CUTTING DOWN CAMELLIAS.

I SAW in the Journal some time ago a writer regretting to part with some very favourite Camellias, but was obliged to do so as they had grown too tall for the house. In reference to this subject I will describe how I treated a plant in the spring of 1881. In the first week in August, 1880, I undertook the management of a small greenhouse and flower garden, and in the greenhouse with other plants were two Camellias about 6 or 7 feet high and 4 or 5 feet in diameter. They were in a very unhealthy condition and infested with insects. I placed them out of doors intending to throw them away, for I thought it scarcely possible for them to recover; but before turning them out of the pots a gardener called to see me, and he said that the lady would have to supply others if these died, as they belonged to the landlord. Such being the case I determined to cure them if possible. I placed them on the gravel walk outside, and gave them a good syringing every afternoon as soon as the sun was going down, and I washed every leaf with a flannel and soap twice before removing them to the house again in the beginning of October. They both flowered very well, one in particular, which seemed to have quite recovered, but the other soon showed symptoms of its old complaint, so as soon as the last bloom was open I determined either to kill or cure it. Every branch of the tree that had a leaf was cut off, and then the old stems were dressed with pure paraffin. This was effectual, growth became vigorous, and now the specimen is in admirable health.

It is now about thirty years since I first wrote on gardening subjects in the Journal, and if you think my beginning again after a long silence, and after having had twenty more years of experience, would be of service to your readers, I will try and resume my pen.—A LITTLE MARKET GARDENER.

[We shall be glad to hear from you; your long experience cannot fail to enable you to write usefully.—ED.]

THE DUNROBIN SNOWDROP.

(*GALANTHUS NIVALIS* VAR. *MELVILLEI*.)

A WEEK or two ago I received from Mr. Melville, the esteemed gardener at Dunrobin Castle, a box of Snowdrops, and amongst them were flowering bulbs of this fine variety. I at once compared them with all the Snowdrops then in bloom here—*G. nivalis*, *G. Elwesii*, *G. plicatus*, *G. Imperati*, and one or two others; but in size of flower *G. Melvillei* bears the palm, and may fairly be termed the queen of Snowdrops. Mr. Peter Barr long ago told me of the great size and beauty of this kind; but although it was certificated by the Royal Horticultural Society at South Kensington in the year 1879, it does not appear to be generally known, and I had never seen it until Mr. Melville kindly satisfied my curiosity as before related. So delighted was I at the sight of the great pearly white flowers that I sketched them on the spur of the moment for the Journal, and the engraving is very exact as to size and form. Perhaps it is the best description one could give. The three inner segments are arranged in a spreading campanulate manner, their markings of green being like those of the typical *G. nivalis* but more decided. I am not quite sure of its origin, but think it is a seedling from *G. nivalis* raised at Dunrobin Castle by Mr. Melville, who will perhaps be so good as to enlighten us as to the history of so beautiful a variety.

It is so common to hear even good gardeners speaking of "the Snowdrop," that doubtless many are unaware of the many varieties in cultivation. The following kinds are grown in our old garden here, but there are doubtless others which we do not possess. Here is our list—*G. nivalis* fl.-pl. var., *G. n. Melvillei*,

G. n. Shaylockii, *G. n. serotinus*, *G. Elwesii*, *G. plicatus*, *G. Imperati*, *G. Redoutei*. Of these *G. Melvillei*, *G. Imperati*, *G. Elwesii*, and *G. plicatus* are the best, and, as I think, their superiority is in the order as here arranged.

Few other hardy bulbs are so well adapted for planting on outlying portions of the lawn, or in orchards or portions of parkland near to the mansion, or near woodland walks and drives. Lines of them planted as a front row on borders or in clumps near to the grass edgings of flower beds are also very effective, or they may be utilised under trees or shrubs along with hardy

Cyclamens and *Winter Aconites*. It may not be generally known that *Snowdrops* are grown for sale by the acre in Lincolnshire, where, indeed, these bulbs seem to thrive better even than in Holland, which, speaking generally, is the Paradise of hardy bulbous plants.—DUBLINENSIS.

TUBEROUS BEGONIAS.

SOME of the most useful plants are the *Tuberous Begonias*. They are very easy to grow and require no fire heat; in fact, they



Fig. 32.—*GALANTHUS NIVALIS* VAR. *MELVILLEI*.

may be grown admirably in a brick frame. Ours are grown in that way until the blooms are showing, when they are removed to the greenhouse. If named varieties are grown the present is the best time to procure the tubers, just as they are starting into growth. When received pot them in equal parts of turfy loam and leaf soil, with silver sand and a little pounded charcoal. If wanted early they must be started in heat, but if towards the end of July or beginning of August a cold frame is the best place for them. Keep the soil rather dry till they start well into growth, always being careful in the watering. Keep them close to the glass, and ventilate freely on all favourable occasions. Here they may remain till they are coming into bloom, when the greenhouse will be the best place for them.

If seed is obtained sow it now on light soil in well-drained pots placed in brisk heat, with a piece of glass over each to prevent

rapid evaporation. When large enough to handle prick the plants out in pans, and afterwards pot as necessary, growing them in a rather warm position till they are of good size, when a cold frame will suit them. I have always found the flowers finer the second season after sowing. After they have finished blooming let them ripen off, and winter them in any cool dry place free from frost.—X.

NOTES ON NEW PLANTS.

CYPRIPEDIUM SPICERIANUM.—The Orchid-growing world has been taken completely by surprise as regards this beautiful and hitherto exceedingly scarce *Cypripedium*. Early last week the news was circulated that a very large importation had been received by Mr. F. Sander of St. Albans. This proved correct,

and on Thursday last some 380 specimens were sold by auction at Mr. Stevens's rooms, Covent Garden. Although so short a notice had been given, a large number of Orchid growers and admirers were attracted to the sale-rooms, and the prices for imported plants consequently ruled high, ranging from three to sixteen guineas each—very good prices for imported Orchids. It is said that every plant sold had been seen by the collector in flower, so there can be no doubt respecting the accuracy of the name. The plants were found growing on the sides of perpendicular rocks after a long and troublesome search. There will now be no scarcity of plants, and the high prices obtained for some specimens lately are not likely to be again reached. This will be welcome news for Orchid lovers who have desired to obtain specimens but have been debarred from doing so by reason of its scarcity and great value. It may be remembered that a few months ago a plant in a 54-size pot was sold for sixty guineas, and still more recently a somewhat larger specimen realised no less than one hundred guineas, given, too, by a firm of nurserymen who thus highly valued it in a commercial point of view. The speculation does not appear to be a very promising one.

The woodcut given in this Journal, December 1st, 1881, is a faithful representation of this handsome and distinct Orchid, and the coloured plate in the "Botanical Magazine," April, 1880, admirably portrays the chief characters, among which the fine white dorsal sepal is the most striking. It is said the first specimens sent to Mr. Spicer from India were received without any indications as to their habitat, and this is doubtless the reason the plant has continued scarce.

PRIMROSE HARBINGER.—Among the hardy Primroses this appears to be one of the most distinct and pretty; and it will unquestionably soon become a favourite with all who value the early spring-flowering plants. It is similar in habit to the common Primrose, but the flowers are considerably larger and flatter, the limb being rounded in outline, about 2 inches in diameter, white with a well-defined central deep orange eye, which adds considerably to the attraction of the flowers. It is very floriferous, and succeeds well in pots. This plant was raised by Mr. Gilbert of Burghley, who holds the stock, and the certificate was awarded to him at Kensington last week, and not to Mr. Cannell as was erroneously stated on page 139.

IREFINE FORMOSA.—This is quite distinct from the other two Iresines so generally grown in gardens—namely, *I. Herbstii* and *I. Lindeni*. In the form of the foliage and habit it approaches the latter most nearly, and is said to be a sport from that species, though it differs greatly from it in the colouring of the leaves. These are rather broader at the base than in *I. Lindeni*, being ovate with a tapering apex. The midrib and stems are crimson, the lateral veins being light yellow, which colour also spreads into the body of the leaf, a green tint chiefly prevailing near the margins. It is very free in growth and easily propagated, and the raiser, Mr. Goldsmith of Hollenden, states that he finds it not only extremely effective for bedding-out in the summer but also as a winter decorative plant in the stove, where in a light position it colours admirably.

CŒLOGYNE CRISTATA LEMONEANA.—Visitors to the leading metropolitan horticultural exhibitions during the past year doubtless saw and admired this Orchid on several occasions; but as shown by Messrs. Veitch & Sons at Kensington recently its qualities were admirably developed. It is easily distinguished from the typical form—not by any marked deviation in the form of the flowers, but by the delicate lemon colour which tinges the crest in the centre of the lip. In the species this is orange more or less deep in shade, and when seen together the species and the variety constitute admirable companions. To these should be added the pure white *Cœlogyne cristata alba*, and the cultivator will possess a pretty trio.

PINGUICULA CAUDATA.—This still continues comparatively scarce in cultivation, though I understand that at least one firm is in possession of a stock which is being increased as rapidly as possible. To anyone who may be fortunate enough to have a plant a hint as to its propagation may be acceptable. An intelligent friend, who has had much experience in increasing plants, informs me that he has succeeded in obtaining plants by removing some of the lower leaves and inserting them in very dry sandy soil in a moderately warm but not too damp position, affording similar treatment to that accorded other plants increased in this way. This is a ready mode of increasing the stock, and will probably soon lead to the plant becoming better known. In the cool Orchid house, in company with *Droseras*, *Darlingtonias*, *Drosophyllums*, and *Sarracnias*, it thrives well and continues in flower for a remarkably long period. A good instance of this can be seen at Kew, where plants have been flowering the greater

part of the past year, and one is still bearing flowers as brightly coloured as any produced at a more favourable season. The rich crimson hue is much admired by all who see the plant, and some have compared it very appropriately with *Masdevallia Lindeni*. The leaves have now developed into a broadly elliptical form, resembling other species of *Butterwort*, and quite different from their appearance when the plant was first exhibited. Well-drained pans with a compost of peat, sand, and sphagnum suits the plant, and the surface of the soil may be covered with living moss.—L. C.

AURICULAS AND POLYANTHUSES FIFTY YEARS AGO.

LOOKING over some old volumes in our literary institute library a few days since I saw Miller's "Horticultural Register," and turning over its pages I found coloured figures of a new *Auricula* just then issued by Waterhouse of Sheffield—*Conqueror of Europe*, and shown for the first time in 1833. Further on I found an illustration of the gold-laced *Polyanthus George IV.*, with an interesting list of the then best varieties, and the number of prizes won by each during 1833. Permit me a few reflections by way of retrospect, to which I have no doubt many of your older readers may be pleased to add. Looking at the culture then adopted I counted fifteen different ingredients considered as indispensable in the compost which it was necessary to mix in mystic proportions, which I need not here repeat, even as a curiosity.

It is rather strange that Sheffield with its atmospheric shortcomings was then, as now, remarkable for lovers of florist flowers and successful raisers of new varieties. It would appear *Conqueror of Europe* created then quite a sensation, which is not surprising, for Miller says, "The flowers are nearly the size of a crownpiece, and would not fail to take the first prize wherever exhibited." As figured, the ground colour is a dark crimson velvet, but much feathered; yet how few better grey-edged *Auriculas* have we to-day, after fifty years, while every other department of floriculture has advanced with strides? If this is true of *Auriculas*, it seems even more so of gold-laced *Polyanthuses*; for in the list above referred to, the three with the greatest number of first prizes—viz., Pearson's *Alexander*, Cox's *Prince Regent*, and Buck's *George IV.*, are among the best exhibition flowers of to-day. Nor do they seem to multiply so as to become reasonably cheap. This seems curious, especially when we think of the formerly expensive and showy plants often imported from the tropics, such as *Orchids* that are now often sold for less than some of these *Polyanthuses*. What is the secret? Do they die out rapidly? Can they be replaced from seed or quickly multiplied by division? It seems not. As to seed-propagation, I fancy in nineteen cases out of twenty, as seed is generally collected from either *Auriculas* or *Polyanthuses*, or any of *Primula* family, it is simply gathered without ever having inquired if hybridisation from some inferior kind has not been effected. An *Alpine Auricula*, it is known, will spoil any number of edged kinds if near. Lovers of those fine flowers must naturally desire that they should have more attention.—W. J. M., *Clonmel*.

SILKWORMS AND SILKWORM-REARING.—7.

IN these times, when articles can be rapidly transmitted by means of the facilities steam gives, supposing silkworms were extensively reared in the British islands, their yield of cocoons could be sent for winding, without harm, to other countries where the deft fingers of the women have proved to be clever at this work. Moreover, the rate of wages would probably be considerably less than our winders might require; yet we hardly like to think our women and girls are not as skilful as those of Italy and France, nor need the failures during last century in some partial experiments tend to discourage us. It is, however, a part of the business quite distinct from that of rearing, though it may be carried on within the same premises; and in those countries where the silk industry is of importance, the cocoons are sometimes sent long distances to be wound. That work may be progressed with gradually, the rearing has to be done in its particular period of two months, which is followed by ten months of inactivity in this pursuit. It is amongst the possibilities of the future that science may discover a plan by which the worms can be forced out of their eggs so as to have two or even three broods during the summer, although the economic advantages might not be so considerable after all. There are warm climates in which a succession of the caterpillars of *B. Mori* are now easily obtained, and these may be deemed promising for silkworm culture. Japan is an instance where *B. Mori* thrives, that country being also famous for its special silkworm, the Oak-feeding *B. Yama Mai*.

Resuming the subject of the French silkworm establishments, I remark that the cocoons, after a sufficient time has been given to insure the transformation of the worms into the chrysalis state, are separated by gentle handling from the stalks or twigs to which they have been attached. Under any circumstances the insects within the cocoons have to be stifled before the silk is wound off, after those required for breeding have been selected and placed in a moderately warm room. The old plan of killing the insects by an oven of the construction used by bakers has been superseded by a plan far more suitable, since by the other many of the cocoons were overdried, while in some the chrysalids escaped with life. Under the improved apparatus (fig. 33) steam of regulated temperature is passed through a series of shallow baskets of wicker, in which the cocoons are laid till the death of the chrysalids is insured, which can be ascertained by trying a few. The steam needs to be hot and dry, because half-condensed steam is likely to damp the cocoons injuriously. When the cocoons are to be sent a long distance the steaming operation must be continued until the contents are dried to a powder; the cocoons may then be packed with pressure, and upon being plunged in hot water they resume their former shape. A brief exposure to the air is requisite after the cocoons are removed

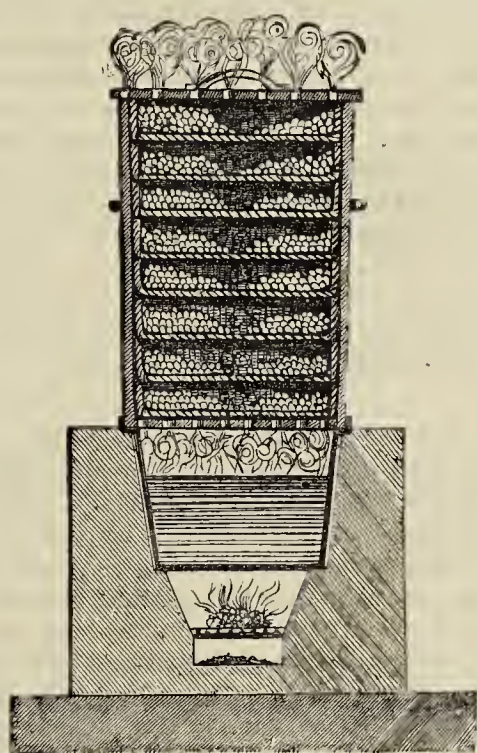


Fig. 33.—Apparatus for Stifling Chrysalids.

from the influence of the steam. A cocoon that has been thoroughly dried will be found minus at least two-thirds of its former weight. Lastly, upon this head, it should be noted that in some countries exposure to the sun's rays is the common method of destroying the chrysalids, when the cocoons are to be sooner or later wound off—a plan occasionally tedious and unsatisfactory.

As briefly as possible we will describe the usual manner in which the cocoons are reeled by those women whose skill fits them for the manipulation, so that the threads unwound from several cocoons form an entire and uniform thread of the thickness required. Frequently a number of women are engaged together, their looms being connected with a long spindle, which is moved by hand or other power. Each worker has before her a pan, into which hot water is introduced, and the heat of this is kept uniform with supplies of steam, which she regulates by a tap. A suitable quantity of cocoons is thrown in from time to time, and they are stirred round, so as to loosen the silk on the surface of the cocoons, which is rather adhesive or gummy; by this means also the floss silk is separated from the main threads. The next thing to be done is to beat the cocoons rather lightly with a small birch broom or brush, the threads that have now been freed yet caught in the points of the twigs. By examining the little tangle of filaments, composed of threads from several cocoons, the practised winder can quickly ascertain that the main thread of each is quite ready for operating upon. Then a staple, or *brin*, is formed by joining the ends of four, five, six cocoons, perhaps more. Two are commonly made at once, each hand being employed, the threads being made to cross each other, then twisted several times; again separating them after this, the winder runs them through a hook, and they are finished off by the wheel, the rapid motion of which smooths and strengthens the threads

formed. On the breakage of one of the original threads another is brought in. Caution is exercised when making every join lest the compound thread become uneven or insecure; then the threads are by the winder at the conclusion of her operations put into hanks, ready for the manufacturing process.

Considered as an article of commerce the value of silk depends chiefly upon good reeling. Badly wound silk may be worked up in various ways, unless it be so coarse or uneven as to necessitate its subjection to carding. This carding or combing, on a plan similar to that employed with wool, hemp, &c., is pursued in the first instance sometimes with poor cocoons, and the silk obtained from many of the new silkworms of our day must be carded; it cannot be wound by the thread.

Japan is an advancing country, and in the future we may anticipate for it a rather important position amongst civilised nations. Already there are Japanese girls who are more skilful than the maidens of some western lands in reeling silk, and with a little instruction they may become on a par with the proficient hands of France, since they are quick and persevering. According to Mr. Adams' observations, at present the work of winding the silk from the cocoons is done almost too rapidly, causing an irregularity in the size of the thread, only attributable to haste or to carelessness, since the cocoons show no defects, their quality ranking high. The appliances are in many villages of a primitive character. Those who have had some experience manage to keep two winders going at the same time; each cluster of threads before it is passed upon the winder is passed through a hair ring, and also through a notch in a rod of bamboo. These small winders are turned by the hand of the girl, and the skeins usually re-reeled afterwards and formed into large skeins by a large machine. It is noticeable that in the Japan establishments it is common to first wind off the loose or floss silk, which is made into a rough thread called *noshe*. In doing this a portion of the true cocoon is often removed. The water into which the cocoons are plunged is cooler than Europeans generally employ, and the distance to the winder is short, so that the threads are less likely to dry up and snap suddenly.—J. R. S. C.



HARDY FRUIT GARDEN.

FRUIT trees are now in a more forward condition than is usually the case so early in the season, particularly Apricots and Peaches. The various methods of affording protection were alluded to in our last calendar, but we may state that where moveable protection is adopted, such as canvas screens, it should be applied every night until all danger is past. The buds of Pears on walls, also those in the open, are alarmingly forward, and should the weather prove frosty when the blossoms are expanding protection should be given; also for Plums.

Figs which have been covered during the winter should be uncovered on mild days, deferring pruning until the embryo fruits are visible, so that the least fruitful shoots may be removed. To insure good crops excessive pruning must be avoided, removing only the stronger unripened shoots as far as practicable during the summer, and the winter pruning is only needed to thin the short-jointed well-ripened shoots [where too crowded, and by stopping the points in summer of those bearing fruit short-jointed fruitful wood will result, and the fruit having the benefit of more light and air will mature more completely.

The pruning and nailing or tying-in of such fruit trees as the Morello Cherry on north walls should be attended to without delay, thinning out the shoots where this is necessary, but avoid as much as possible cutting back the shoots. Wherever standard fruit trees have been recently planted they should be securely staked and be well mulched with good stableyard manure, all newly planted trees on walls having similar attention. Where it is necessary to make new plantations of Strawberries at this season the ground must be well prepared by trenching and manuring if necessary. Well-rooted runners of last year being at command, it is better to defer planting until growth commences, and then lift with a ball of earth to each so that little check may be given.

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the earliest forced house have the fruit in a forward condition, and thinning must not longer be delayed. A fruit to every square foot of trellis covered by the trees is ample where fine full-flavoured fruit is in request; and if the trees be in good health there is little danger of the fruit being cast in stoning, very vigorous trees being more liable to this than those with the wood short-jointed and well ripened. As the shoots advance in growth they must be carefully tied in, attending to this early, so that those starting from the base of the current year's bearing wood and intended to displace it may be given the requisite position without danger of breakage. Shoots reserved for drawing the sap to the fruit should be stopped to a few inches of growth, and closely pinched at the first joint afterwards. Avoid laying in too much wood, overcrowding being inimical to sturdy growth. Syringe morning and afternoon to keep red spider in check, and if aphides appear fumigate moderately when the foliage is dry. The temperature until the stoning is completed should not exceed 60° to 65° by day and 70° to 75° from sun heat, the night temperature being maintained at 55° to 50° for the next few weeks. Some tepid liquid manure applied to the inside borders will assist the fruit in swelling.

The trees started early in the year have set the fruit, and will need to be syringed occasionally on fine afternoons to assist in removing the old blossoms. The temperature should be kept at 50° to 55° at night and 55° in the daytime artificially, advancing to 65° from sun heat, above which ventilate freely. Disbudding must be completed as soon as possible, and when the shoots reserved at the base of the current year's bearing wood are sufficiently advanced they should be carefully heeled in, so as to give the desired inclination to the growth. When the fruit is the size of small marbles it should be moderately thinned, removing those on the under side or at the back of the trellis, and commencing with the smallest, doing this gradually so as not to give any check. Weakly trees must be assisted with liquid manure, and the surface of the border may be mulched with 2 or 3-inch thickness of manure.

The trees usually started early in this month are now in full blossom, and should be attended to daily in impregnating the blossom either by shaking the trellis or directly applying the pollen from the anthers to the stigmas by means of a brush. Where the blossom is superabundant run the hand downward at the under side of the shoots so as to rub off those on that side, and this will lessen the weakening tendency of over-blooming. In order to obtain a good set turn the heat on in the morning so as to secure a day temperature of 50° to 55° with ventilation, allowing an advance to 60° or 65° from sun heat. Maintain a genial condition of the atmosphere by damping available surfaces other than the trees in the morning and afternoon of fine days. The night temperature should be kept at 45° to 50°. Supply the inside borders when necessary with water at the same temperature as the house.

The blossoms of the trees usually coming into flower in March are now expanding, and a little heat should be turned on in the morning to secure a temperature through the day of 50° and allow of a circulation of air, the night temperature being maintained at 40° to 45°. Later houses should be kept as cool as possible, but after the flowers expand retarding must not be attempted. See that there is no deficiency of moisture in inside borders, watering weakly trees with tepid liquid manure.

Cherry House.—Of all stone fruits the Cherry is the most impatient of fire heat, especially in the early stages of growth. The season, however, so far has been very favourable, but little fire heat being needed. Keep the temperature at 45° through the day with fire heat and 40° at night. Syringe the trees on the morning of fine days, and damp the surface of the borders whenever they become dry, and cover them with 3 inches thickness of partially decayed manure. Now the buds are opening keep a sharp look-out for aphides, and fumigate repeatedly.

FLOWER GARDEN.

Violas are deservedly much esteemed for bedding. To grow them well they require a moisture-holding soil, hence the ground should be well prepared by trenching and working in some well-decayed

manure. Similar preparation should be made of beds intended to be planted with Calceolarias and other moisture-loving plants. Pansies and Violas struck in the autumn may now be planted in their permanent quarters. Calceolarias, if wintered in store pans or boxes, should be planted out in cold pits or frames. Edgings of Cerastium, Golden Thyme, and other hardy plants can be taken up and relaid as required. Herbaceous Phloxes require attention, thinning out the shoots freely, leaving the strongest so as to secure fine heads of bloom. If the plants are old they should be divided, replanting in ground well enriched with manure. Carnations, Picotees, and Pinks must be cleansed, and the soil firmed about them. Wistarias, Clematises, Roses, and other climbing or trellis plants may be pruned and regulated, leaving the strongest and best ripened wood to be tied in. Roses such as Maréchal Niel and Cloth of Gold should have the best and ripest shoots laid in full length, removing only the unripe points, as the flowers of these varieties are borne on the young wood.

Forward such operations as relaying turf and Box edgings, planting deciduous trees and shrubs. The ground amongst shrubs may be lightly forked over, but it is a mistake to dig deeply among choice shrubs, which, mutilating and destroying the surface roots, is injurious. Prune and thin out any common sorts unduly encroaching on choice kinds. Many plants which from neglect have become straggling should be cut well back, and they will break again and form good heads; but if a timely and judicious use of the knife for a few seasons be practised the plants may be made to assume almost any form desired, and if once the growth is equalised they will retain the same form with but little after attention. In pruning shrubs the chief aim should be to avoid formality and unnatural shapes. The ground amongst shrubs is much enlivened by introducing quantities of spring-flowering plants, such as Winter Aconite, Snowdrops, Primroses, and Daffodils, disposing them in masses.

PLANT HOUSES.

Greenhouse.—The young stock of greenhouse hardwooded plants, such as *Boronia serrulata* and *B. pinnata*, *Correas*, *Epacris*, *Pimeleas*, *Gompholobiums*, *Leschenaultias*, and *Hedaras*, should be repotted, employing good fibrous peat with about a sixth of silver sand. Do not disturb the roots more than is necessary to remove the old drainage, for no attempt must be made at reducing the ball, and ram the fresh soil in very firmly. Plants with healthy roots may have a shift of 3 or 4 inches, but any that are rootbound must only have a moderate shift now, giving another later on when they have rooted into the new soil. Pinch out the flowers of any that it is desired to grow on quickly, and bring down the strongest shoots in a horizontal position, and there secure them, so as to lay the foundation of a good specimen. Any large plants that are rootbound can now be transferred to larger pots, and if the potting be carefully performed it will not interfere with their flowering. Place them on some material that can be kept moist, shading lightly during very sunny weather, have plenty of moisture in the atmosphere, and do not admit any air at the side of the house.

Liliums must not remain under stages or other dark places after they are pushing through the soil, but must be removed to a good light position so as to prevent them becoming drawn, and secure sturdy growth well furnished with leaves to the bottom, or they have a very poor appearance. *Epacris* which have flowered should have the seed pods removed, and be cut back if they require it, placing them in a little heat to assist their growth, and damping overhead occasionally. *Primulas*, *Cyclamens*, *Cinerarias*, and similar plants advanced for flowering should have weak liquid manure, and any plants in comparatively small pots for the size of the plants be similarly assisted. *Vallotas* now starting into growth need copious supplies of water.

Pelargoniums as they fill their pots with roots must receive more water, not allowing the soil to become dry, or the leaves will suffer; the fancy varieties do not require so much root moisture as the more robust varieties. Keep the plants near the glass with free ventilation. *Calceolarias* should be potted as they require it, medium-sized plants in 6 or 7-inch pots being most useful; but any vigorous plants not yet showing flower may be grown into fine specimens by shifting into 8 to 10-inch pots, and when they have rooted into the new soil assist with liquid manure. Fumigate occasionally and moderately.

THE BEE-KEEPER.

THE NEEDFUL QUALITIES OF HIVES.

A CORRESPONDENT who is contemplating substituting home-made frame hives for skeps asks a series of questions which involve points of such general interest that I answer him by addressing the readers of these columns at large.

Material.—The disputed point as to the best material to use in the construction of hives cannot be in any way satisfactorily settled without a consideration of the main objects to be gained. Bees in a state of nature build generally in hollow forest trees, and are then surrounded by conditions which are, on the whole, extremely favourable. The thick coating of porous, decaying, sapless wood, conducts heat with extreme slowness, while the foliage of summer gives an additional protection against the ardent rays of the sun. It must be remembered that a community of honey-gatherers is in much the same position as a warm-blooded animal which has, in popular language, "to keep itself warm in winter and cool in summer," or, more accurately, maintain a constant temperature despite external fluctuations. The more non-conductive of heat the hive is made the less is the needed effort of the bees in securing the aforesaid uniformity, and consequently as we improve the hive in this respect we reduce wear and tear of the individuals of the community and add immensely in consequence to the possibilities of profit. For want of a little scientific knowledge not a few schemes making the hives chilly and unsuitable to bees have been introduced with the alleged object of keeping the latter warm. In one case a sheet of glass was let into the hive side to face south in winter, so that the sun shining upon the glass might warm the occupants—a theory which quite overlooked the fact that a hive which admitted the dubious heat of a winter's sun through it also allowed during the piercing nights and cold days the substantial heat of the cluster to be dissipated. In addition to this also, I should urge that the warming of the hive in the winter, even if it could be so accomplished, is a positive evil, against which every bee-keeper beyond the alphabet in the art would carefully guard. On account of the good qualities of straw as a heat-conserver it held its own long and well against badly constructed wooden hives, and with some bee-keepers there still lurks an idea that straw has some special indefinable virtue which links it to bee-life with a bond which ought not to be separated. Some argue that it absorbs the moisture produced within and so keeps all dry, an idea which is doubly false, for if it absorbed water it would soon become a good conductor and would make all wet. The truth is that the tension of water-vapour varies with the temperature, or more simply, the greater the heat below boiling point the more vapour may be held in a definite space; and as bees are always producing water within them by the burning of honey in their bodies to keep up temperature, the cluster has the air in its midst practically saturated with water-vapour. Further, when this air passes away to the hive side and is thereby chilled, the vapour, which can no longer be all held, is deposited as moisture. The same thing occurs in a warm room during chilly weather, when the window-pane will commonly be found bedewed within by deposited moisture. If the glass be thin this deposit of moisture may be considerable, but if double glazing (one sheet within the other) be adopted, scarcely a trace of moisture will ever appear. From this we readily gather that the higher the non-conductivity of the hive the greater, *ceteris paribus*, the internal dryness.

Wood is so clearly more manageable than straw, and admits of so much more accurate fitting, while its durability, especially if protected by paint, is so much greater, that strong reasons only could warrant its rejection. The severe winters of the northern States of America have obliged bee-keepers there to devise means for greater security than mere wooden hive sides afford, and what are called chaff-hives are there increasing in number, and are found to winter bees admirably. These chaff-hives, so called, are simply thin wooden hives surrounded by an outer wooden skin with an interspace of about 4 inches, which is filled in with chaff. In experimenting I have found, as some time since I stated in this Journal, that cork dust, such as is used in packing Spanish Grapes, and which can be had in most towns for the asking, is vastly superior as a non-conductor to chaff, the relative protection between these substances being as 14 to 10. Narrow air spaces are of value, while wide ones are really useless for a double reason. 1, The air mis-called "dead air" freely circulates and rapidly carries heat away by what is called convection. 2, The outside cover, necessarily much

larger than the hive proper, presents such an increased external surface that it scarcely adds to the protection. This leads to mention in passing a hive recently introduced which has closed ends to the frames and a wide airspace of about 4 inches, bounded by a thin wooden case. Scarcely any conceivable form could give a better opportunity for the escape of heat, while the perfectly unworkable character of the frames make it unlikely that its introduction will be followed by its adoption, so that any further remarks in relation to it are scarcely necessary.

Straw is highly suited to hive walls because it consists of a number of air pipes which are laid horizontally, and consequently give a succession of actually dead air spaces with a comparatively small quantity of solid material; but cork dust is far more non-conductive, because with far less weight of material it imprisons a large amount of air; and since it can, unlike straw, be enclosed between two wooden skins, worked easily, and fitted accurately, and besides costs less and is more durable than chaff, I see many reasons why it should be the chosen material for the advanced hive-maker. Its protective power beyond simple wood is nearly 14 to 1, an advantage which none but the experienced carefully appreciate. The other points in our correspondent's list of queries I must take up next issue.—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

BRITISH BEE-KEEPERS' ASSOCIATION.

THE annual general meeting was held on the 15th inst. The chair was occupied by the President of the Association, the Baroness Burdett Coutts. In the unavoidable absence of the Rev. H. R. Peel, the Honorary Secretary, through indisposition, the minutes of the last general meeting and the Committee's annual report for 1881 were read by Mr. T. W. Cowan, the Chairman of the Committee. After the adoption of the report and the re-election of the President, Vice-Presidents, Treasurer, Auditor, and Honorary Secretary for the ensuing year, the following gentlemen were elected for the Committee of 1882: Mr. T. W. Cowan, Rev. E. Bartrum, Rev. G. Raynor, Mr. J. M. Hooker, Hon. and Rev. H. Bligh, Mr. H. Jonas, Mr. D. Stewart, Capt. C. D. Campbell, and Rev. F. T. Scott. Sundry votes of thanks having been unanimously recorded to the retiring officers, the most important motion affecting bee-keepers and bee-keeping generally was brought forward by the Rev. George Raynor as follows: "That it is desirable that the British Bee-Keepers' Association do set forth a STANDARD FRAME, stamped by its sanction and authority, with the view to bringing such frame into general use, its size and form to be determined by a Committee appointed for that purpose." The question of a standard frame for general use has been discussed by all leading apiarists for a considerable length of time, the general opinion being that the matter should be taken up by the British Bee-Keepers' Association. Mr. Raynor in introducing the motion spoke as follows:—

"The resolution which stands in the agenda paper in my name is one of no small importance to the bee-keepers of this country, and indeed I may say to all who are technically or otherwise interested in the art of bee-keeping. I will endeavour, very shortly, to state a few of the more prominent advantages such a frame should possess. First would be the interchangeability of all frames. How great a boon this would be I must chiefly leave to the makers of hives and the vendors of bees to tell you. This point cannot well be over-estimated, especially now that bee-culture is being taken up so extensively by some of our leading farmers. A few days ago I received a letter from a cultivator of many acres in Lincolnshire to the effect that he was investing largely in bee-culture, and upon modern and approved principles. And what a field is opened to the bee-keeper by the thousands of acres of Mustard with its fragrant golden bloom which this plant affords, the fields of white Clover, and other mellifluous plants? We must all rejoice that the farming interest at last is showing signs of a growing appreciation of this long-neglected industry; and in this view how highly necessary is it that, far more so than at any other period, that we should have a standard frame, as affording the greatest facility for the transfer and sale of bees, hives, and appliances. Honey extractors would come into more general use, since one size alone would be required, and their use would be greatly extended. I know that it has been objected that standard frames and uniform extractors would be a certain means of spreading disease, but surely this is a futile objection. Have we no knowledge of these diseases? Is there no remedy? In all other transactions the maxim, *Caveat emptor*, is fully acted upon, and I have yet to learn that bee-keepers, as a rule, are more easily cheated than other classes. Now a 'standard frame' does not imply a 'standard hive.' The hive may be of any size—i.e., may contain any number you please of standard frames, hence the desirability of making the frame, and not the hive, the standard. Hence also it would appear best to state inside dimensions of frame, since some may prefer to use stouter material for frames than others, and it is important that the comb-surface should not vary.

"As regards our shows, I would say, Do not make your 'standard frame' a *sine qua non* for hive competitions, but give it the preference *ceteris paribus*. It may be expected that I should state my own

views of the size and form of frame most desirable, but this, I think, is a matter that may be well left to a committee to deal with. I may, however, say that the general view appears to be that a shallow rather than a deep frame should be adopted, providing the depth be not less than $8\frac{1}{2}$ inches, nor the length than $12\frac{3}{4}$, in order that the frame may receive six 1 lb. sections. The shape I think of less importance, although as giving a decided preference to a tapered frame I should advocate a 'double standard,' in other words a rectangular and a tapered frame of the same superficial contents, and, from what I have stated above, the size would most nearly approach the Woodbury frame. Shallow frames are most easy of manipulation, better for extracting, are more easily suspended in a vertical position in the hive, and there is no necessity for those abominations or queen-destroyers, called racks, to keep them in their places. It is said that bees winter better in deep frames, but with our modern appliances for winter and the contraction of the hive this objection has no force. Heat ascends, therefore will a deep frame, when the bees cluster at the top of the frames, the space below will be filled with cold air."

The motion was seconded by Mr. T. W. Cowan, and after some discussion was adopted unanimously. The following gentlemen were nominated as the Committee to carry out the resolution: Mr. C. N. Abbott, Mr. T. W. Cowan, Mr. F. Cheshire, Mr. J. G. Desborough, Mr. J. M. Hooker, Mr. A. Neighbour, Rev. G. Raynor, Rev. F. T. Scott. The Honorary Secretary will be glad to receive communications from bee-keepers generally. Every information upon this important question will be gladly received and duly considered by the Committee.

The Committee of the Association also met for general business. There were present Mr. T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. G. Raynor, Rev. F. T. Scott, Mr. J. M. Hooker, and Mr. D. Stewart. The minutes of the last meeting were read, confirmed, and signed. The balance sheet for the month ending January 31st was also read, showing a balance in hand of £66 1s. The Hon. and Rev. H. Bligh submitted the amended scheme for the management of the proposed "Economic Apiaries Competition." After some discussion, and verbal amendments having been made to a few of the rules, it was resolved that a series of regulations should be adopted. These regulations we shall publish next week.

FUMIGATING BEES.

In the article entitled "Bee-keeping for Beginners.—No. 1," published in your last issue, Mr. Pettigrew makes the following extraordinary statement—"The secret of the use of smoke in handling hives and bees is a very valuable one, and it was bought of an Irishman in Edinburgh for a gill of whisky many years ago." Will Mr. Pettigrew explain to your readers the following passages from Virgil and Varro? The fact is that almost all writers on bee culture for the last two thousand years have recommended smoke for subduing bees.

"Fumosque manu prætende sequaces."—(*Virg. Georg.*, iv., 230.)
(Drive in with your hand the penetrating smoke.)

And again we have—

"At suffice Thymo . . . quis dubitet?"—(*Virg. Georg.*, iv., 241.)
(Who would hesitate to fumigate them with Thyme?)

And again—"Verno tempore æstivo, fere ter in mense, mellarius inspicere debet, fumigans leviter eas, et a spureitiis purgare alvum, et vermiculos ejicere."—(*Varro*, lib. iii., cap. 16.) "In the spring and summer season, generally thrice in the month, the bee-keeper ought to inspect [the bees], fumigating them moderately, and cleansing the hive from filthiness, and casting out the little grubs [of the moth]." Colnmella also writes extensively on the same subject.—GEORGE RAYNOR, *Hazeleigh Rectory, Maldon*.

[In Martyn's edition of the Georgics, published in 1746, he has a note to the effect that "it is a custom to drive bees with smoke"]

BEES AND FRUIT.—We often see paragraphs relative to bees and flowers, but do we sufficiently appreciate the value of bees in contributing to the fruit crop? I have been informed that a fruit-grower has found them of great advantage in an orchard. He says all orchardists should keep bees, and they will gain a double return from them—honey in the hives, and fruit upon the trees. Is this anything more than a "flight of fancy?"—SUBURBANIST.

TRADE CATALOGUES RECEIVED.

Samuel Shepperson, Prospect House, Belper.—*Catalogue of Florists' Flowers*.

A. H. Curtiss, Jacksonville, Florida, United States.—*List of American Shrubs and Hardy Plants*.

E. Webb & Sons, Wordsley, Stourbridge.—*Catalogue of Farm Seeds (Illustrated)*.

J. Carter & Co., High Holborn, London.—*Catalogue of Farm Seeds (Illustrated)*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Primula Blooms (*F. G.*).—They bear some resemblance to Mr. Gilbert's varieties, but are not quite so full. One is very neat, and both are well worth preserving.

Flowers from Cannes (*T. B. B.*).—The flowers you have sent are of the Paper White Narcissus, bulbs of which are sold in the autumn by all nurserymen and seed merchants. They require the same treatment as Hyacinths, whether grown in pots or planted out. They are quite hardy, but are grown largely in pots for early forcing.

Mushroom Bed (*James*).—The material to which you refer, if turned occasionally so that it is perfectly sweet, might if spawned produce Mushrooms, but we should not expect them to be very fine. In its present condition the heap is not suitable. Turn it over on alternate days for a week and it will be in much better condition. It must not be offensive when used. Press it very firmly together, insert spawn when the temperature of the bed is about 80° and declining, and a few days afterwards cover the surface with good soil, made very firm, and an inch deep.

Fertilisers for a Garden (*F. J.*).—Guano of guaranteed quality mixed with one-third of salt and applied among the crops at the rate of about 2 ozs. per square yard will answer your purpose. Superphosphate of lime with a third of nitrate of soda applied at the rate of 3 ozs. per square yard will answer equally well, or both mixtures may be used alternately with advantage. Such manures as Clay's fertiliser and others that are advertised are good for all growing crops.

Superphosphate of Lime (*A. Novice*).—Although good liquid manure may be made with this fertiliser, still the whole of it is not soluble, and it is better to apply it as a surface dressing both to plants in pots and to Vine and Peach borders. It is a safe and excellent manure, and, not being so strong as guano, may be used in larger quantities than that manure. For plants in pots a small teaspoonful of the superphosphate may be sprinkled on the soil of a 6-inch pot when the plant needs more support than the soil affords. When Vines and Peach trees require manurial assistance, from 3 to 4 ozs. may be sprinkled on each square yard of the borders and lightly pointed in the soil.

Musa Cavendishii (*Idem*).—Rough turfy loam with a third of decayed manure added and a fifteenth part of superphosphate of lime will form a suitable compost. When the pot is full of roots much water will be needed, also liquid manure frequently, and occasional rich top-dressings, or you will neither secure handsome foliage nor fine clusters of fruit. Unless the pot is very large and support is liberally given the plants will not be nearly so healthy and fine as if it were planted out. Mr. Ollerhead of Wimbledon has planted strong suckers in the spring which have afforded clusters of fruit weighing nearly 100 lbs. the same season, but he could not have obtained anything like such results had the plants been grown in pots.

Pear Tree Ulcerated (*J. T. S.*).—If all the branches are in the state represented in the sample before us it is very doubtful if your tree will ever become healthy. The excrescences impede the circulation of the sap to such an extent that the tree can make but little growth, and any fruit it may bear must be necessarily small. If the variety is good we should sever the branches below the affected parts, as if cutting it down for the purpose of grafting, and you would probably soon have a healthy tree again—that is, if the new growth were not permitted to become infested with the insects that have caused the injury in this case—American light.

Climbers for Conservatory (*Alpha*).—Your letter, like many others we receive, is of such a kind that we can neither answer satisfactorily to ourselves nor usefully to our correspondents. You ask for "the best creepers for a conservatory." In the first place we have no idea how many you require, and in the second we have nothing to guide us as to the space you desire them to occupy. You will perceive if we named a dozen and only half a dozen or less were needed that our reply would be of no real service, as you would not know which to select from the superfluous list. Again, if we recommended Tacsonias, Cobæas, and Passifloras, which are so well adapted for a spacious building of 30 feet high, they might be totally unsuited to your conservatory, which possibly may not be half that height. We trust, therefore, both for their own benefit and for our satisfaction that those needing selections of plants or fruits will state the number they require and the space, in the case of climbing plants especially, that they desire them to cover, and the position they are to occupy. If you will afford us the necessary information on these points your letter shall have our best attention.

Grafting Oaks (*J. E. B.*).—The scions must be taken off at once and inserted in moist soil in a cool position, so that the stocks may be a little advanced in growth when grafted. Choose for the scions clean healthy two-year-old wood. Cut down the stocks, which we presume are small, close to the ground, graft in the usual manner, clay over and cover the clay with soil, leaving only the ends of the scions visible. If you have to graft high above ground the clay must be covered with moss or other material to prevent it cracking. We presume you are acquainted with the art of grafting; if not, you had better take a lesson from a gardener, or you may possibly fail in your object.

Camellia Flowers Falling (*Rebecca*).—It is difficult to determine what

is the real cause of your Camellia flowers falling directly they expand without seeing the plants. At one time we were inclined to think it constitutional to some varieties, but from close observation now think differently. Yours is not a mere case of bud-dropping, but is brought about by a similar cause. If you examine the buds that have not developed upon the same plant you will find in many cases the centre turning brown, and by the time the flower fully expands it is black and unable to retain the petals. It is not unfrequently caused by the want of nourishment when trees are carrying a large number of flower buds, and perhaps are not very luxuriant. They require supplying liberally with stimulants to enable them to perfect the flowers. In no stage do they require such attention as when their buds are swelling. The soil in which they are growing may be unsuitable, and the plant is therefore unable to supply all the requirements. It will happen with healthy luxuriant trees in fertile soil, but can then be traced either to dryness in the air or at the roots, a stagnant wet soil, or the plants being suddenly placed in stroug heat—in fact, a check while the buds are swelling will bring about a blackened condition of the centre, and nothing afterwards will prevent them falling prematurely, or at the latest when fully expanded.

Liquid Manure for Roses (E. C.).—It is always difficult to state what quantity of water should be added to the drainage from stables, as frequently much water is used in the buildings. It is, however, always wise to err on the safe side by using the liquid manure much diluted and frequently, rather than giving it to the plants strong and at wider intervals. We think your proposition to add six parts of water will be safe. It will be for Roses, but we cannot answer for its effects on "other plants" unless we know what they are and the condition in which they are in. As a rule liquid manure can only be beneficially used when the pots are filled with roots, and the plants need more support than the soil affords, and we know that many plants are injured by liquid manure injudiciously applied.

Bouvardias Unhealthy (Idem).—The discoloration of the leaves sent is not the result of red spider nor of any other insects. It is due to defective root-action or to a too dry or low temperature, or a combination of these conditions. Plants after flowering not unfrequently become unsightly, chiefly from the soil being exhausted, but often by some error in watering—the soil being too wet at one time and too dry at another. Either of these extremes cause defective root-action and brown leaves. Shortly after the plants have flowered they may be pruned rather closely, and if when fresh growths appear the plants are slightly disrooted and repotted in good soil, the succeeding growth will under good management be healthy. They require the genial temperature of an intermediate house to preserve them in health and encourage free growth at this season of the year.

The Linnean System of Classification (K. L., Cheshire).—The abbreviations and names which have puzzled you refer to the Linnean classification, and indicate the position of the plants in that system. Thus—Pentandria Monogynia after the name of a genus signifies that it is included in the first order of the fifth class; Diadelphia Decandria, that the plant is in the fourth order of the seventeenth class. It is termed the sexual system because the arrangement is founded upon the number of stamens and styles in the flowers, whether they are united or separate in the same flower or in different flowers. For instance, the names of the classes Monandria, Diandria, Triandria, Tetrandria, Pentandria, &c., signify respectively one, two, three, four, and five stamens, those being the number of stamens in the flowers of the plants included in those classes. In the same way Monogynia, Digynia, Trigynia, &c., signify one, two, or three pistils, and constitute sub-divisions or orders of the various classes. Other characters are also adopted—for example, Monadelphia and Diadelphia, stamens united by their filaments in one or two bundles; Syngenesia, stamens united by their anthers; Gynandria, pistils and stamens united; Monœcia, pistils and stamens in different flowers upon the same plant; and Dioecia, with the stamens and pistils in different flowers and on different plants. Some of these designations are also adopted as names of orders. In most works on elementary botany you will find the system explained at length.

Heating a Vinery (F. C.).—We certainly never told you to place the three pipes "all inside the pit." We told you to have two rows of 4-inch pipes along the front of the bed (not in it, nor under it), and one pipe, the return, next the path back to the boiler. This means they were all to be outside the bed (two in the front, and one at the back), under which you proposed conducting the flue for affording bottom heat. The plan you now submit is essentially different from the other and better. You may carry the flue as you propose and also the pipes under the bed, but you must have sliding shutters in the walls of the pit for admitting heat into the house, otherwise your bed will be too hot and the temperature of the house insufficient; or you may have one pipe in the pit and the other outside, the former for affording bottom and the latter top heat. Either of the plans will answer, as also will the boiler, provided it is correctly set and the pipes are properly arranged. We think one pipe with the flue will give sufficient top heat for a house of such small dimensions. There will only be room for one row of Pines to fruit.

Marechal Niel Roses in Pots (M. A. B.).—As the plants are "healthy and strong" we presume they produced long and stout growths last season, and being under glass these growths ought to be matured. Assuming that they are in the satisfactory state implied by your letter, you have only to train them round sticks inserted in the pots or secure them near the glass after the manner of Vines, and afford the necessary support to the shoots, and a flower will be produced by almost every growth from almost every eye of the young wood. If the pots are filled with roots, as they ought to be, it will be well to remove an inch or two of the surface soil and add a fresh compost of turfy loam and decayed manure in equal parts. After growth has commenced a slight sprinkling of bonemeal applied to the surface of the soil weekly, or a thin covering of soot, will enrich the colour of the foliage and blooms.

Scilla siberica not Growing (Idem).—The plants succeed in precisely the same kind of soil that Hyacinths and Tulips thrive in—namely, turfy loam, leaf soil, and decayed manure, with a liberal admixture of sand. How and when were the bulbs potted? Where had the pots been kept, and to what treatment has the soil been subjected? It is so unusual for the Scillas to fail that we are at a loss to suggest a cause for your bulbs not starting without some data that you have not supplied.

Mustard and Cress for Market (S. H. R.).—In the market gardens where Mustard and Cress are largely grown the seeds are sown either on the inside borders of vineries or in small span-roof houses and frames especially devoted to the purpose. In the latter case a light moderately rich soil is employed, generally old Mushroom beds, the surface being rendered smooth and level. The seeds are sown on the surface, carefully watered, and covered with mats until after germination, when they are removed to allow the growth to advance. We do not know a firm which makes a speciality of the knives used in cutting this salad, but any cutler would make one for you. They are furnished with blades

1½ inch wide, about a foot long, with a crank at right angles near the haft about 3 inches in length, resembling a bricklayer's trowel, and the end of this is again turned at right angles and inserted into a small handle. An article upon this subject will be shortly published in these pages, from which you will derive further particulars.

Aucubas Fruiting (G. H.).—When you wrote to us before you did not state your object. It is not necessary to graft the plants for securing fruit, nor are they so grafted. Provided both the forms are flowering at the same time, and the pollen is transmitted from one to the other, fruit will follow. This is every year effected by the wind, and we know of many Aucubas that are laden with fruit with no other aid than a male variety planted near them. To cut down your plant as suggested would prevent what you hope to obtain. When small plants in pots are produced densely covered with fruit the pollen is applied to the stigmas with a camel's-hair brush, but for ordinary purposes you have only to plant out your male plant near the other, and fruit will follow when the weather is favourable for the dispersion of the pollen. Failures not unfrequently occur by persons keeping the male plants in pots under glass, and thus induce them to flower long before the others in the open air expand their blossoms. Under these conditions no fruit can follow. If your plant is in a pot, retard the expansion of the flowers until those open on the shrub that is planted out, then shake the pollen of the former over the latter, and you may expect a crop of fruit. You would certainly fail in your object if you attempted grafting. If the pollen is mature before the female flowers have expanded preserve some in paper in a dry place, as instances have occurred where the pollen has retained its fertilising power for a week or more.

Heating (C. P. L.).—As you do not intend having a door between the stove and greenhouse, we presume you will have a stage across the end of the latter. In that case the pipes could be arranged all round the house except the doorway; and although you do not state the height of the house, two 4-inch pipes would probably afford you sufficient heat, our judgment being founded on your experience with the present house during a severe winter. You will of course require valves for admitting heat to the greenhouse when needed, as there will be occasions when artificial heat will be essential in the stove only. We do not prefer 2-inch pipes for connecting the boiler with the house, but as they have answered in the past they will probably answer also in the future. Tanks are by no means essential, but evaporating troughs on the flow pipes in the stove would be of great value. Your proposal of having four 3-inch pipes would certainly be ample, and may be adopted if more convenient. If we have failed to understand your case we will readily attend to another letter if you feel that further information is desirable. Could you not secure the advice of a competent gardener in your district who has had experience in heating garden structures?

Liquid Manure (F. P. D.).—One of the simplest, safest, and best kinds of liquid manure for plants in pots is that made from soot, and the best mode of preparing it is as follows—Tie up about a peck of soot in a piece of old sacking and immerse it in a tub containing thirty gallons of water. Let it remain there, and in a few days a scum will form on the surface which should be skimmed off. If the liquid is not clear add a few lumps of fresh lime, say 4 or 5 lbs., and again remove the film; the soot water will then be as clear as sherry, and in the right condition for use, but will be too strong for most plants, therefore dilute until of the colour of very pale ale. This will be good for all the plants you name, but when such as Chrysanthemums are growing freely and the pots are crowded with roots the soot water may be stronger. At the same time you must remember that liquid manure if given injudiciously will do harm rather than good to plants. As a rule no stimulants should be given until plants are placed in the pots in which they are desired to bloom, or to remain if they are fine-foliated plants, and then only when the pots are filled with roots. Much injury is caused by giving liquid manure to plants before they need it—that is, before the roots have taken possession of the soil.

Names of Fruits (W. Potten).—We are sorry we cannot recognise the Apple you have sent.

Names of Plants (J. U.).—We have received no specimens of Begonias from you. All the specimens which reached us have been attended to. (S. B.).—1, *Oncidium flexuosum*; 2, *Cypripedium venustum*; 3, *Zygopetalum crinitum*. (C. E. M.).—1, *Muhlenbeckia complexa*; 2, Specimen insufficient without flowers; 3, *Dietyopsis Thunbergi*; 4, *Linaria Cymbalaria*; 5, *Sisyrinchium grandiflorum*; 6, a species of *Vilarnum*, but cannot be determined without flowers. (J. R. B.).—*Rhodora canadensis*. (Inquirer).—Specimen much crushed and quite unrecognisable. (E. M., Canterbury).—Two diminutive leaves such as you sent are quite insufficient for identification. Send a few shoots, and give us some particulars of its habit.

Frame Hives (F. J.).—As you will perceive in the report of the British Bee-keepers' Association's meeting a standard frame is not determined, but a committee is formed to consider the subject. You cannot do better than await the report of this committee, composed as it is of some of the most skilled aparians in Britain. We have had great success with frames similar to your own, and if you manage your bees well you have nothing to lose by awaiting the report in question before making any alterations in your hives.

COVENT GARDEN MARKET.—FEBRUARY 22.

TRADE steady, and prices well maintained.

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.	
Artichokes.....	dozen	2	0 to 4	0	Mushrooms	punnet	1 0 to 1 6	
Asparagus	bundle	9	0	10	0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney	½ 100	2	0	2	6	Onions	bushel	3 6 0 0
Beet, Red	dozen	1	0	2	0	pickling	quart	0 0 0 5
Broccoli	bundle	0	9	1	6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	½ sieve	1	3	1	6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0	6	1	0	Potatoes	bushel	2 6 3 6
Carrots	bunch	0	4	0	6	Kidney	bushel	3 0 3 0
Capsicums	½ 100	1	6	2	0	Radishes.... doz.	bunches	1 0 0 6
Cauliflowers	dozen	1	0	3	6	Rhubarb	bundle	0 4 0 6
Celery	bundle	1	6	2	0	Salsafy	bundle	1 0 0 0
Coleworts.... doz.	bunches	2	0	4	0	Scorzoneria	bundle	1 6 0 0
Cucumbers.....	each	1	0	2	0	Seakale	basket	1 0 1 6
Endive	dozen	1	0	2	0	Shallots	½ lb.	0 3 0 0
Fennel	bunch	0	3	0	0	Spinach	bushel	3 0 0 0
Garlic	½ lb.	0	6	0	0	Tomatoes	½ lb.	1 0 2 0
Herbs	bunch	0	2	0	0	Turrips	bunch	3 4 0 0
Leeks	bunch	0	3	0	4	Vegetable Marrows	each	0 0 0 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 0 to 6 0	Lemons.....	1 case	12 0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bnshel	16 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	1 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	1 sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert.....	dozen	0 0 0 0
Filberts.....	1 lb.	0 0 0 0	Pine Apples.....	1 lb.	1 6 2 0
Cobs.....	100 lb.	55 0 65 0	Strawberries....	per oz.	1 6 0 0
Gooseberries....	1 sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	1 lb.	3 0 10 0			



POULTRY AND PIGEON CHRONICLE.

CULTIVATION AND MANAGEMENT OF HOPS.

(Continued from page 145.)

IN training Hops we still find that the ordinary mode of placing several poles vertically on each hill prevails in most districts; it is well, therefore, that the growth of wood best adapted for Hop poles should be attended to on the estate, and in order to do this a double object may be accomplished—that of turning inferior land to account by their growth, and at the same time obtaining them with but little carriage. The wood best adapted is of several kinds, but on poor land Larch Firs planted as thick as Cabbages will grow into Hop poles very quickly, so that the land may be cleared in twelve or fourteen years, taking the first cutting about the ninth year. Another plan is to plant underwood in every third row, so that as soon as the Firs are cleared away the underwood may produce a cutting periodically, say every ten or twelve years. The wood best adapted for this is the American Locust Tree or Robinia; this is very quick in growing, but will endure double the time of our own woods usually grown, such as Sweet Chestnut and Ash.

We will suppose that all the poles used the previous year, and which were proved to be sound and fit for future use, have either been stacked or laid around the outsides of the ground where it consists of a few acres only. Upon large fields they are usually laid in heaps or stacked in perpendicular position at intervals, so that each stack or heap will supply enough for a hundred hills. They will then be conveniently placed for use together with such new poles as may be required. The latter, however, as soon as pointed at the bottom should be soaked in creosote for some hours and then put by to become dry before being used. Three poles is the number generally placed to a hill, being put into holes made with an iron bar like that used in the folding of sheep, arranging them in triangular form, and inserting into the ground as many inches as the poles are feet in length. From 18 to 24 inches is a good distance for the poles at the same hill to be placed from each other. When this is completed the ground should be horse-hoed. The old-fashioned nidget is now gone out of use, or should be allowed to make way for an expanding iron horse of great power, so that it may be used for deep or shallow stirring of the soil as may be required, and the land is reduced to as fine deep tilth as possible.

The next work is tying the vine to the poles, and as this work should be done with great care it is entrusted to women or strong girls who have been accustomed to the work, and the tying is continued as long as it can be reached from the ground. At the time of cutting some bines may be removed, especially such as are too weak and unpromising in growth. Tying is, however, often continued, especially with Golding's Hops, by the use of a short expanding ladder, like that used by painters, carpenters, &c.,

only lightly made for easy removal. After the Hops are well up the poles and have been properly tied women accustomed to the work are employed to cut away all extra shoots of bine about 4 or 5 feet above the ground, as these extra sprouts only weaken the growth of the main bines and prevent their fertility, and often delays the time of picking also, which is always a matter of great importance. The material employed for tying is usually rushes and sedge dried tough for the purpose, sometimes old matting materials are used; rushes, however, are found to answer best, as it gives way and breaks as the bine gets older and larger. Tougher tying material like yarn often cuts the stem of the bine, it then bleeds or breaks, either of which often proves fatal to the produce of Hops. About three of the best and strongest bines are tied to each pole, and the remainder if any are cut away as they only weaken the growth, by which the Hops are more subject to the attacks of enemies like blight and mould.

The interculture must be continued in the alleys by horse-hoeing, but not deeply after the Hops reach the tops of the poles; hand-hoeing should also be continued in the lines between the hills. Digging in the summer should be avoided, particularly upon very stiff soils, because if the land breaks up rubbly and rough in a dry time the bine turns yellow and seriously diminishes the crop. When the horse-hoeing is being done in the alleys strong upstanding horses should be worked, otherwise two are required, and this necessitates a boy to drive, as they cannot be used only at length, the space not being sufficient to admit two horses abreast.

Earthing the hills is the next operation, which is performed by taking earth from the alleys with a shovel and placing it on the top of the hills, filling up the space between the poles, which greatly encourages the future growth of the bines. This work is essential for several purposes; first, to prevent young fresh shoots striking out of the hills and to keep the weeds under; it also causes the bine to enlarge and form stronger cuttings for the next year. It has a further effect upon the crop for another year, such as making the future bines more productive.

We have now enumerated the different items of labour up to the time of picking, and must proceed to consider the question of manuring on the surface by portable manures during the growth. In the case of attacks of blight and mould extra manure applied to the surface soil will oftentimes enable the Hop vine to overcome its difficulties, and by an extra growth of vine yield a partial crop, whereas without this encouragement the crop is frequently entirely lost. To understand the manures required for Hops we should consult the article by Mr. Nesbit which appeared in the Journal of the Royal Agricultural Society, vol. vii., part I, which furnishes an analysis of the mineral ingredients of the Hop, and will form the best guide as to the kinds of manure required.

Blight and mould are the two greatest enemies the Hop plant has to contend with. The first is caused chiefly by attack of the black aphides, and in this case the advantage is shown of the so-called ladybird or fly-golding, which devours these insects, and have done more for their destruction in most seasons than could possibly be accomplished by any human means; yet for the destruction of the black aphides and also the green aphides a mixture of softsoap and tobacco is used, 28 lbs. of softsoap to a hundred gallons of water and a quarter of a pound of tobacco. This solution is showered over the plants by a common garden engine and hose, but it must not be done while the plant is in burr or bud, nor when the flower is beginning to ripen. The attacks of red spider produce upon the leaves of the Hop what is often called "fire-blast," owing to its peculiar appearance, the leaf looking as though scorched by fire. For this it is found that sulphur in solution applied by the water engine is the best remedy. Sulphur is also the best to destroy white mould as it is called, or any other species of fungus having attacked the plants. Those Hop-growers who have used sulphur upon correct principles look upon the practice as an essential part of cultivation, and is called into use on various occasions and purposes during the growth of the plant, which is applied by an implement called a sulphurator, the sulphur being thrown up evenly over the plants by a revolving fan, as the barrow-like implement is wheeled along the alleys.

Harvesting or picking usually takes place when the Hops are quite closed up at the tips, rustle or crackle when touched, and when the farina is of a rich golden colour and the seeds perfect and firm. The longer they hang in moderation the better their weight, and the more they improve in condition if free from blight or mould. Picking is now done in much less time than formerly, for it rarely lasts longer than three weeks if the early Goldings are chiefly grown. More care is now taken to prevent the leaves being mixed with the Hops during the act of picking. Instead of baskets and bags an improved "bin" or portable frame, to which a cloth is fastened for picking Hops into, is becoming gene-

rally used for the purpose. The improvement consists in its being made so as to fold up, and may thus be easily carried by one man in moving from the ground, besides taking up much less room in the waggons or carts than previously. The pickers who stay at or near the gardens generally come from a distance, and much pains and care is now taken to provide lodging and other accommodation for them by the growers, especially on or near to the large plantations, which is much appreciated, and it is said that the effect is to make the pickers better workers.

Drying is an art which requires great and diligent care, for a slight excess of heat or an irregular application of it spoils the colour of the sample, making the Hops brittle and harsh and "smell of the fire." Kilns for the purpose of drying are called oasts or oast houses, are made round and pointed at the top, where a cowl is applied which gives vent to the heat even at the most windy times. The houses at a distance look much like the round small cornricks we see in the stackyards of Scotland. The houses are built in groups oftentimes, and all of them are heated in the same way; and near to these oasts is a room for stowage of the Hops as received from the pickers, and for weighing, and with cooling room above. These circular kilns are made 16 feet in diameter. The drying is effected by placing the Hops upon a horsehair cloth stretched over stout lathes, and is now placed higher above the fire than formerly, so that drying may be satisfactorily done without burning or overheating. The practice is to dry with a temperature of about 120° to 130°. The Hops when laid on the haircloth and perfectly free from rain water at picking time, are placed much closer and deeper, so that the process may be effected at the least expense. The fires are best maintained in the kilns with combined Welsh coal and plenty of ebareoal, so as to produce the softest sample of Hops and freest from the smell of smoke. The best or Farnham Hops are usually packed in pockets by a presser of great power. Some planters formerly packed in bags. The weight of an ordinary pocket of Hops about 2½ feet wide by 5½ feet long is about 1½ to 2 cwt. each nett weight, and these are very convenient for carriage to any distance by waggons or railway trucks.

WORK ON THE HOME FARM.

Horse Labour.—Ploughing and planting the early Rose Potatoes has been progressing, and where no stable, town, or yard manure had been put in from 4 to 5 cwt. per acre of Peruvian guano have been applied, strewed into the furrow with the sets as the work proceeds. This application we have found for many years to exceed in effect and produce any amount per acre applied as yard or town manure. The early Potatoes we plant 18 inches apart, in lines 27 inches apart. The weather has been so favourable up to the middle of February, that the sowing, planting, or drilling of Beans, Peas, or Vetches was nearly completed by that date in most districts. We do not remember the strong land everywhere, but especially in the midland counties, to have been in finer condition for the seed, nor has there been any hindrance by the weather up to that time. Black Tartarian Oats or drege may now be sown with the best advantage, but wherever the land has been cleaned Barley has been put in first, for it is found that the early-sown, although it may receive a check by change of weather, always produces a heavier and plumper sample fit for malting purposes. Drege corn, too, will bear the changes of weather without prejudice to the crop, but all these crops should be drilled at 10 or 12 inches between the lines, or otherwise drilled by the presser drill, depositing the seed in the grooves formed by the rings of the presser; and if the land requires hoeing there is then ample room for the horse hoe and hand hoe to work freely. The white early Oats may be sown in the first week of March with advantage, such as the Swiss Oat, the White Canadian, the early Lincoln White, the Poland, and some others, which are all great croppers if the land is highly manured; they will then give an outside produce both in quantity and quality. We saw a sample of White Lincoln Oats, weight 48 lbs. per bushel, lately, the produce being stated as large by the grower; we, however, like the Canadian best, for they are very early and productive. We have frequently grown eighteen sacks per acre, and at harvest time sown the land with white Turnips as fast as the corn was cut, and obtained full crops, and in some instances we have sown the same kind of Oats after the Turnips fed off by sheep, the produce again being equal to the first crop. The straw of these Oats is first-rate, and being early more likely to be well harvested. We frequently sow these Oats with Clover, which often furnishes a full crop for soiling cattle at and after Michaelmas, the Oat crop being removed early greatly encourages the growth of any green crop or roots sown in the crop or after its removal.

The land has during the past month been in capital condition to receive the seed of Oats or Barley if clean and free from couch; if not, the sooner the steam cultivator is brought into action the better, because so much can be done in a little time, the horses following and harrowing and rolling. We advise the home farmer not to wait for weather for burning the couch and weeds, but to use the Bedford drag harrow made by Messrs. Howards, followed by the chain harrow; this will enable the men and women with forks and rakes to collect the couch and cart it away to heap. As fast as this is done the next ploughing

may take place with the same routine of work without attempting to burn anything; this plan will prove not only real economy in work, but a saving of time and season for sowing. By all means drill Barley or drege in rows 10 inches to 12 inches apart, and apply 2 cwt. of superphosphate and 1 cwt. of Peruvian guano per acre by drill or broadcast, and under this system you will be sure of a malting sample unless the land has been poached by the tread of the sheep in feeding of roots on the land in wet weather, if after a fallow the quality will be good.

Where a quick succession of crops is taken, such as we have alluded to, the land cannot well be too liberally supplied with manure. We have never seen these white Oats laid or lodged to injure them, because they turn off ripe so early that they will fill and ripen whether standing erect or otherwise. They must be cut early to have the full advantages of the soil, and the straw, according to Dr. Voelcker's analysis, is equal in nutrition to water meadow hay, and certainly better for the feeding of fattening bullocks. Rolling the grasslands and park pastures should now be done where laid up for hay before the land gets too dry, and the late rains which we have had has greatly favoured the work on both field grasses and the meadow land of every variety.

Hand Labour.—The weather has lately been in favour both of men and women employed on the farm in field labour; for instance, the forking-out of bunches of couch grass upon land autumn-ploughed will on the mixed soils be sure to have a few lumps of twitch, and the best way to attack it is with the fork, which may cost about 2s. or 2s. 6d. per acre. This money will be well expended, because upon land intended for Barley, Potatoes, or Mangolds no extra ploughing will be required, nor will there be any delay of the seed time by the attempt to eradicate the couch by costly horse labour. In this way in our farming we kept our land clean for many years without attempting to cultivate by steam or extra horse power. Four upstanding horses are used for each hundred acres, and this frequently upon farms of mixed soils, sandy loams, and clay intermingled in the same field, which every home farmer accustomed to such land knows to be the most difficult of any to keep clean by either horse or steam power, unless aided in every available period of the year by forking out the couch by men or women at every suitable interval.

Live Stock.—All stock, except swine, is now remarkably dear, the number of sheep having been greatly reduced throughout the kingdom by fluke rot, &c., for the past two years. This is one cause, but the mild winter has saved the hay and root crops, the latter having grown, more or less, as well as the grass on all dry soils during the whole of the winter months. This has improved the demand for cattle of all sorts, dairy cows, young store cattle, also bullocks of various ages for stalls or box feeding. Sheep also of every kind or age are selling in the markets, for although the fat sheep and lambs are selling very high and will pay well for the fattening during the winter, yet the next purchase for the same purpose offers but a poor prospect of future profit. The early Dorset and Somerset lambs have proved of rare quality this year, and are now nearly all sold, having made a good price. The early Dorset Downs are doing well. We have never seen them better or more in number, being quite healthy and free from lameness as compared with some former years. The lambing season is now just commencing in the midland counties, and the health of the long-woolled ewes, the Shropshires, and Oxford Downs is equally good as in other counties. Some of the best ewes, however, have brought dead lambs, and this is difficult to account for at all times; it, however, arises from internal fever and irritation which centres in the womb, producing premature birth of the lambs. We notice that some farmers have mooted the idea that roots produced by the application of superphosphates, if given to breeding ewes, have been found to be the cause, but long experience is against this assumption. It is stated to have been proved by results, but in no instance have we seen proof offered but such as can be attributed equally to coincidences rather than to practical results or effects of certain kinds of food eaten by the animals. The subject must be decided by showing the difference if any in the analysis of food grown by superphosphate dressings as compared with other applications. No doubt injudicious use of roots is prejudicial to ewes in lamb.

POULTRY AND PIGEONS

DERBYSHIRE REDCAPS.

We are constantly asked to recommend breeds of fowls. A not uncommon requirement is a race which are non-sitters, good layers, and ornamental. There seems plenty of choice, but when it comes to the point of selection, and the various excellencies of each kind are considered and compared with the special requirements of the case, by degrees this, that, and the other kind is eliminated, till we really find ourselves at a loss. We have certainly never had to do with any race equal to the Hamburgh family in regularity of laying and length of time during which they lay, but their eggs are small. This for many people is a disadvantage, especially where they are

required for market. We have seen various Hamburg crosses, the hens of which seemed to vie with their Hamburg relations in laying powers, and whose eggs have been considerably larger, but then they are of little value as birds, and most people now-a-days like to have all their live stock "good of its kind." We have often written on the advantages of a pure over a mongrel race, and are not here going to take up that theme again. Suffice it to say that pure-bred birds are always more or less saleable, and their particular qualities can be calculated upon with greater certainty than those of crossed strains.

We have lately met with an offshoot of the Hamburg family, which strikes us as being peculiarly suitable for those who require a laying breed: we mean "Derbyshire Redcaps." We had often heard of them, and had some vague idea of a Lark-crested fowl associated with them; they are not, however, such. When visiting the great Knighton yards during a particularly chilly fit of weather in chill October our attention was attracted by a handsome and bright pen of birds in rosy condition when all others were moulting. They were Derbyshire Redcaps. In colour they resemble Golden-spangled Hamburgs, though their markings are far less distinct. In size they are larger than exhibition Hamburgs, and rather longer in body and leg. They have rose combs regular and coral-like, from which of course they derive their name; more after the form of very good White Dorkings' combs than those of Hamburgs, and even in confined quarters they have a look of hardihood and blooming condition. Long ago we possessed a pair of what were then called (and in some places are still so called) "Pheasant Fowls," not unlike them.

We had no opportunity of personally testing their good qualities, but from those who have we hear high praise of them. In their native county and neighbouring regions they are much prized. Many a fancier in a small way who does not care to keep mongrels, and for whom exhibition breeds are, when good, too expensive, would find them a boon as a breed at once pure, pretty, profitable, and procurable at a moderate cost. That they are no product of modern crosses is proved by the fact that we find them mentioned by Dixon in 1850 under the heading of Hamburgs—"The Redcaps in our list are a family of the breed, with their combs somewhat more developed than would be considered a model."—C.

POULTRY NOTES.

WE have been struck with the fact that several well-known and very practical fanciers have been offering their incubators and artificial mothers for sale lately. It would be interesting to know why they are returning to natural mothers—whether because they have lost faith entirely in artificial incubation, or because in their particular circumstances they find it troublesome.

INCUBATORS remind us of the protracted controversy about the Hemel Hempstead incubator contest. We had hoped that it was long dead and buried; but not so by any means, for we have lately heard on the highest authority that the poultry world is soon likely to have its *cause célèbre*, and that the whole question will soon be revived in the law courts in a suit for libel connected with it.

WE have always thought that one of the most objectionable malpractices connected with poultry and Pigeon shows was borrowing and lending of birds, now happily a rare occurrence at our great shows. Of course it immediately matters little if birds are exhibited in one name or another, but the inevitable result of borrowing is intentional or unintentional dishonesty. Too often the winner with hired specimens advertises his birds or his eggs as from the stock which has won at such and such a show, while the birds on sale are not in the remotest degree related to them. Even if this should not be the case his stud gains fictitious fame, and so a fictitious value. We have been astonished to hear from a high foreign authority that at the Paris Poultry Show just held it was a well-known fact that many winners shown by Frenchmen were simply English birds sent over for the occasion for hire! This is equally discreditable to English breeders and French exhibitors.

WE have already observed one or two cases of gapes in early chickens. As a rule we do not expect to see the disease till later in the spring. There seems great doubt and obscurity about the origin and generation of the red parasite in the throat which causes it. We should be obliged to any of our readers who have studied the subject scientifically, or who have made any practical experiments upon chickens affected with it, to give us the result of their experience.

WE were lately writing about rare Bantams; since then we have received an interesting account of a pair, unfortunately both hens, imported some time ago from India. They sound like miniature Aseels, and are described by their lady owner thus—"They are a purple black, about the size of a Blackbird, and fly just as well as that bird. They are very tame, hardy, and very good layers of a round egg, but they will not lay in a house."

WE were much struck with the excellence of the catalogue of the Poultry Club's Show at Cambridge. The short descriptions of the various breeds and their characteristics were, with perhaps the exception of that on Turkeys, most excellent. The awards were printed at the side and not on those troublesome loose sheets, and all this for 6d. What must not some shows make by their clumsy catalogues sold at 1s.? It has occurred to us that it would be a benefit to "the fancy" if the Club were to draw up an official description, or rather issue officially these descriptions of the various breeds, and allow them to be inserted in the catalogues of the many shows now held under its rules.—C.

POULTRY DYING.

THERE is little difficulty in discovering the most probable cause of the death of Mr. A. Nelson's fowls. His general management as to cleanliness, &c., is fairly good, but he evidently neglects one most important point—an easily accessible supply of pure water. His birds are poisoned by drinking the impure water from the manure heap. This produces diarrhoea, which, being neglected, in time causes death. The remedy is to be found in a constant supply of pure water, and, if necessary, excluding the birds from the part of the yard where the impure water lies.

The best treatment for the birds already affected would be a good dose of castor oil, followed by rice boiled in milk, with as much powdered chalk as would lie on a threepenny-piece mixed therewith. We may further note that the bran probably aggravates the diarrhoea by irritating the bowels. Coarse middlings is no more costly than bran, and is much superior for general purposes.—BUFF.

CRESTED WHITE DUCKS.—Can you, or any of the readers of your valuable Journal, kindly inform me if the beautiful white-crested Ducks we sometimes see are of foreign origin, and of a distinct breed, or if British? Where is their native district for procuring birds or eggs? Any information will greatly oblige—A CONSTANT READER.

OUR LETTER BOX.

Spanish, &c. (J. B.).—We never recommend individual fanciers. You had better get a catalogue of a local or metropolitan show and choose for yourself. We prefer dry earth to any other flooring. Asphalt or cement covered with sand or earth makes an excellent floor. As regards rabbits, we hardly think you will be able to obtain what you want.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. February.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	12	29.917	41.4	45.8	S.W.	38.4	55.1	35.8	78.8	32.1	—	
Mon.	13	30.013	47.7	45.4	S.	39.3	52.4	35.6	55.9	34.0	0.083	
Tues.	14	30.176	50.6	48.6	W.	41.2	55.7	47.0	88.3	42.8	0.363	
Wed.	15	30.783	39.8	39.7	N.	42.4	51.8	39.8	75.2	38.9	0.083	
Thurs.	16	30.410	36.7	34.9	S.W.	41.4	49.4	31.4	57.9	26.7	—	
Friday	17	30.231	47.2	44.7	W.	41.6	53.3	36.3	86.7	33.4	—	
Satur.	18	30.258	48.0	45.2	W.	42.3	53.0	44.2	95.4	38.3	0.017	
		30.257	45.2	43.5		40.9	53.0	38.6	76.9	35.2	0.546	

REMARKS.

12th.—Dull with slight rain in early morning, afterwards very fine and mild.
 13th.—Overcast, damp; windy.
 14th.—Rain in morning; fine, bright, spring-like day.
 15th.—Strong wind during night; sharp shower of hail at 8.20 A.M.; dull rainy morning; afterwards fine with slight showers; bright starlight evening.
 16th.—Fine, bright, frosty morning; overcast and showery afterwards.
 17th.—Overcast and high wind at first; fine day with bright sunshine.
 18th.—Fine breezy morning; bright sunshine; showery after 5 P.M.

High barometer, and temperature nearly that usual in the middle of April.—G. J. SYMONS.



2nd	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
3rd	F	
4th	S	
5th	SUN	2nd SUNDAY IN LENT.
6th	M	
7th	TU	
8th	W	Society of Arts at 8 P.M.

GHENT AZALEAS.

THESE hardy flowering plants have of late years become very popular both for planting outside and decoration indoors. Considering the freedom with which they grow and flower in the neighbourhood of towns it is surprising they are not more generally planted. Rhododendrons, as a rule, succeed in smoky neighbourhoods, and where they thrive Ghent Azaleas may with safety be planted. The old *A. pontica* is one of the best early-flowering shrubs we possess. Taking these plants as a whole, what others yield a greater profusion of fragrant flowers of various shades of colour with such little trouble? The varieties of *Azalea mollis*, with their early-flowering character and large flowers, have in many gardens for indoor work entirely superseded other kinds. This is to be regretted, because they do not possess that fragrance so agreeably characterising many of the smaller-flowered forms. All the varieties with which I am acquainted are less highly perfumed than the old *A. pontica*. A good quantity of it is forced here, but its flowers are not so large or fine in colour and substance as *A. altaclerensis*.

These Azaleas are not only useful for the pleasure grounds and glass structures that have to be kept gay with flowers in early spring, but for cutting and room decoration either as large or small plants. When used for room decoration the better varieties should have the most favourable positions where gas is not too freely consumed. *A. pontica* will be found serviceable for arranging in clumps in entrance halls, or where groups of plants have to be employed. This variety will stand much longer than those of the *mollis* type in such positions; they last nearly as long as if kept in the conservatory, and with but little injury to the plants.

Judicious care is necessary in producing these plants in good condition for early forcing, and if desired at Christmas or directly after a haphazard system cannot be depended upon. If lifted from the outside for flowering at that date unsatisfactory results may be anticipated, as they will scarcely have shed their foliage before they are placed in heat. To force these plants successfully at that season of the year they must be grown in pots and assisted early after flowering with light and moderate heat to complete their growth and form their flower buds. They should then be gradually hardened, and placed outside to further ripen and bring them to rest. It is necessary to carefully watch these plants when placed outside. If the season proves hot and dry the buds are liable to start and the flowers to expand during August, especially *A. mollis*

and its varieties. This can be prevented by placing the plants for a time near the north side of a wall.

Plants grown in pots will remain in good condition for several seasons for early forcing, but in time they become exhausted, and should be planted out to recruit themselves, another lot being prepared to take their place. Where a succession has to be provided until they flower outside naturally numerous plants are required, which should be divided into two batches and forced every alternate year. By this means a year's rest is given, and they have a chance of making good growth and develop abundance of flower buds before the forcing time arrives. After they have flowered they should be carefully hardened before planting them out if good results are desired in the future. When ready for planting an open position should be selected where they will be fully exposed to the sun.

Large quantities are annually imported from the continent—well-budded, shapely plants, and quite suitable for 5 or 6-inch pots. These, as a rule, are seedlings of the *mollis* type, and many of them are as good, if not in some instances superior, in colour to the named varieties. The demand for these small bushy imported plants is evidently increasing. No doubt this is due to the difficulty of obtaining similar plants from English-grown stocks, but such need not be the case, as I will endeavour to show. Plants can be grown as well, if only care and attention is devoted to them, in this country as upon the continent.

Propagation is effected by seeds and grafting. Seeds are produced freely by plants outside, and there is never much difficulty in obtaining a good quantity from *A. pontica* and others which are equally free. In case the *mollis* forms are not planted outside, seed can be saved from them that flower early in the conservatory and ripened under glass. When a number of good varieties are planted outside some good seedlings of various shades of colour may be expected. The bees will do all that is necessary towards crossing the different varieties; but this is not the case when flowered early indoors, when they will require to be crossed artificially. This is only mentioned for those who have, perhaps, only a few plants, and are anxious to raise a few seedlings. Where they are raised by thousands the seed will be gathered outside as soon as it is ripe. That ripened under glass can be sown in a pan when gathered, or kept until the February following.

A large shallow frame should be prepared, placing peat about 2 inches deep at the bottom; that placed on the top should be passed through a fine sieve, so that the surface can be made even and smooth. The seed should be sown moderately thick and not covered with soil. After sowing a good watering should be given through a fine-rose watering-can, and the lights placed over the frame and kept close. It should be permanently shaded to prevent the surface drying rapidly, as the seed bed must not be allowed to become dry in any stage. As the season advances the seedlings will appear, and the only attention needed until they are ready for transplanting is shade, with air carefully admitted, and daily sprinklings with the syringe. Before the summer is past they can be pricked out into other frames or glazed boxes, the latter being frequently employed. The soil this time should consist of a good quantity of peat and coarse sand, freely intermixed with the natural soil, with about half an inch depth of the sand and peat on the surface. Such plants as Azaleas or Rhododendrons are not usually pricked out singly. A good patch should be lifted from the

frame in which they have been raised and conveyed in a box where it is intended to plant them. They should be pricked out in little clumps (about half a dozen together), and about an inch from clump to clump, then thoroughly watered, shaded, and kept close until they commence growing. When the young plants are forming roots freely the frames should be ventilated liberally to have the plants as hardy as possible before winter. The boxes should remain over them during the winter, affording protection by mats or other material if the weather proves severe. I have seen the frames entirely removed in early spring when required for other purposes; but it is by no means advisable, as late spring frosts often kill many of the smallest plants, and the strongest are not always the best varieties. When the boxes are removed from one portion and kept upon another there is a marked difference in the growth of the plants.

After they have commenced growing freely and the season is fairly advanced they should be fully exposed, and will only require occasional supplies of water during dry weather. This season the plants will make great progress and require no protection through the winter. In early spring they can be transplanted singly in narrow beds of similar soil to that recommended above, or a good quantity of leaf soil as a substitute for the peat. The young plants will not all be of equal size, as some will make greater progress than others, and should be sorted. In planting they should be placed sufficiently far apart to grow for two seasons without crowding. This occupies a little more ground at first, but labour in transplanting is saved. Some of the plants after the two seasons' growth will be suitable for lifting to be placed in 5-inch pots for forcing, and when in flower they are unsurpassed in beauty for room decoration.

Some little attention is needed after they are transplanted singly, as, if they show signs of an upright growth, the leading shoot should be removed or shortened back, which insures them branching freely. This is not needed after they once commence flowering, for every shoot that terminates with a flower bud is sure to produce three or four shoots, which is not always the case before they are large enough to flower. If it is desirable to keep the plants dwarf instead of allowing them to develop naturally, the shoots can be cut back after flowering, and strong sturdy growths are produced, and in consequence large trusses of flower.

Grafting is a quicker method of producing flowering plants, but as a rule it is only practised for increasing the stock of named varieties or any good seedlings. Grafting these plants is a simple operation, and anyone forcing a few plants into flower in spring and having a few stocks may readily achieve success. The stocks employed are seedlings of the common *A. pontica*, and those anxious to increase their mollis and Ghent varieties would find it cheaper to purchase a few stocks in preference to raising them from seed. The stocks are best placed in early autumn in 3-inch pots and plunged outside until wanted; but good results may be obtained by potting now. The plants selected for stocks should have single stems, and be as dwarf as possible. These and the plants from which the scions are to be taken should be placed in moderate heat, such as recommended for the Conifer house, but they must not be drawn up weakly without air. When about 2½ or 3 inches of young growth has been made on the stocks, and about the same length on the plants from which the scions are to be obtained, grafting may be commenced. A few of the lower leaves on the stock should be removed and the point of the shoots cut off, then a thin slice of the young wood should be taken off with a very sharp knife, so that the base of the scion will rest just at the junction of the young and old wood. The scion should also be young wood, and cut exactly to fit the slanting cut on the stock, being made secure by means of worsted. Care must be taken in securing the two that neither are injured, which is sure to be the case if done roughly. The best way to carry out the operation is to lay the pot on its side and take the stock and scion between the thumb and finger of the left hand; at the same time one end of the worsted should be held between the finger and back of the stock, and then the two should be bound together with the right hand and finished at the base of the scion. When grafted they must be placed

for a time in a moderately close frame and frequently dewed with the syringe. The young wood quickly becomes united to the old, and if the operation was carefully done it is seldom any losses occur. When thoroughly united the uppermost portion of the stock can be removed and the plants gradually hardened and grown under more favourable conditions. If kept in a confined atmosphere too long they generally grow weakly. To save time the plants should be grown through the summer in frames, closing them early in the afternoon to preserve sun heat. The points of the young plants can be removed, which will cause them to branch, but they need not be stopped more than once after grafting.

If a cold frame can be spared plant them out in it early the following spring; they will make great progress, and when well established the lights should be removed. In this position they may remain one or two seasons, according to circumstances, when those well budded can be lifted for forcing and the others planted outside.

I once had charge of a long pit of young grafted plants treated as described, and in two seasons from grafting they became beautiful bushy plants with five or six shoots each, and the majority of them well set with buds. They were equal to any small imported plants I have seen.—W. BARDNEY.

VINES AT LONGLEAT.

(Continued from page 150.)

THE SECOND YEAR'S TRAINING AND PRUNING.

ALTHOUGH there was a bunch of fruit left on each of the young Vines, bringing that bunch to perfection was quite a secondary object, our attention being mainly directed to the building-up of a good main stem, and with this object in view there was no disbudding except where more than one shoot started from the same joint. Some of the growths being much lower down than where the trellis commences, they were, where necessary, supported with temporary stakes till they became somewhat tough and could bear their own weight. They were all stopped at four or five leaves, and, as they started again several times, such as had the trellis to support them were allowed to make a leaf or two each time. There was not much room for the main stem to extend in length, not more than from 5 to 6 feet at the most, owing to the temporary Vines covering the trellis in the centre of the house; and I may say that I began to wish someone else had the temporary Vines, for it was difficult to restrain the growth of the permanent ones. With the exception of the compartment where the Muscats were planted and where they had a space of several feet from plant to plant, the roof was sufficiently covered long before autumn, and the growths were then all kept pinched back as in the previous year, the Muscats, though the plants did not touch each other, being treated in the same way.

It is necessary here, perhaps, to remind amateurs that this encouraging the side shoots down to the ground is not the plan which is generally followed, but it has the effect of causing the main stem to thicken much faster and thus makes it better able in after life to supply the numerous branches and leaves with such good things as they require to have brought up from the soil. If you want the stem of any plant to thicken, even though it is ultimately to be a standard with a bare stem, you must encourage all the growths there are room for from the ground upwards; then you will have the size diminish with the height instead of being, as so many Vines are, with their greatest circumference some yards from the root.

The terminal growth as soon as it had filled the

vacant space was stopped, and was kept constantly pinched in the same way as the side growths. I should have preferred the terminal growth to extend somewhat further, but there was no chance for this without destroying the temporary Vines, and as these had some fruit on I hardly dared to do that.

The growths all ripened well as they had done the previous autumn, and at pruning the side growths were cut back as they usually are with spur-pruning—*i.e.*, one or two good eyes were left on them, the main stems being left with all the good growth they had, but this for reasons which I have previously stated was only from 3 to 6 feet, or about 12 feet in all for the two-years growth. The temporary Vines were now to be cleared away, and the following year the younger Vines would have the full range of the house.

PLANTING THE BLACK HAMBURGHES.

The same season that I have been writing about—*viz.*, 1871, saw the compartment ready for the Hamburgs, for which purpose I had kept some strong one-year-old plants. These were cut down and started in pots, and then planted out when they were about a foot or 15 inches high and had just commenced rooting. They grew very strongly, their stems becoming of great size the first season, and at pruning time we found their pith was dark-coloured and much too abundant, and the wood did not cut so firm as that of the other Vines. Although there was nothing but the simple material already described in the border, and they had nothing but clear water supplied to their roots, they were plainly overfed.

I daresay that if they had experienced as many checks as young Vines usually do, and had been grown while they were in pots and afterwards in an unnaturally high night temperature, they would have had less vigour, and I know that many Vines are planted in the same stage which do fairly well, but their general treatment is not the same as I give. Here, then, I should probably have done better had I followed the rules laid down by many of our acknowledged teachers in the matter of heating, ventilating, &c. I own this much, for my plants were clearly grown too liberally. But on the other hand, when I make another start I shall not go in that direction, but as, in the case of the Muscats, I shall use fresh-struck plants, unless I go back a step further still and insert cuttings a foot long (where they are to remain), made much in the same way as Gooseberry and Currant cuttings are made.

THE THIRD YEAR.

The age of all the Vines was now the same, for although the Hamburgs were only planted the previous year, they were also now in the third year of their existence, and as I want to get the worst over first I shall continue with the history of the Hamburgs. From the time of commencing to prune them I was very much afraid they would not succeed. They started again very vigorously, showed fruit and ripened a crop fairly well, but the pith was more than dark this time—it was black, and the stems had black patches against the leafstalks, which colour continued partly up the leafstalk itself: the consequence was that the leaves turned a yellowish green prematurely, and there was great difficulty in ripening the wood. This state of things continued for three or four years, during which time they did not miss a crop of fruit, and they finished it off fairly well, but I was all the time in a state of

disagreeable expectation (a sort of feeling that most gardeners are acquainted with, I imagine) that something worse would happen.

I tried several plans to remedy the evil. One season I started the Vines earlier, another they were allowed to start themselves. I allowed one Vine to ramble wildly, cut another back severely, and chopped the roots nearly all off a third. But nothing seemed to change them for the better. Their roots were of the most gross description, and if cut off almost close to the stem one autumn, were found out as far as the boundary wall the next. They ultimately exhausted the soil in the part which was bricked off for their roots, and then they commenced to behave better; but even now I am afraid to feed them much, for there are occasional signs of the black pith. Notwithstanding all this, with one or two exceptions, which I can trace to another cause and shall afterwards explain, they have each year produced fruit of more than average quality, and especially so as regards finish. The principal lesson I learn from this partial failure is, that if such vigorous plants are to be inserted their roots must be confined to a smaller space for a time, so as to limit the root-action somewhat. No one need fear that such a thing will happen when ordinary plants are used, for Vines as they are usually grown in pots have not a third of the vigour these had.

The foregoing is a sample of the punishments we receive sometimes for venturing on originality, but it is all for a good purpose. It takes some of the conceit out of us; and as dearly bought experience is most valued we are not likely to forget such severe lessons. But on the other hand we must not lose our heads when such things occur, and attribute the failure to the wrong cause. Fortunately for me in this case, I had two other compartments containing Vines treated in the same way, with the one exception that they were planted out at different ages, and these two compartments up to this stage were doing well; so that, although much of the treatment was original, it was plainly not radically wrong.

There is another thing which strikes me at this moment as having contributed to the unusual rampant growth of the Hamburgs. The border was made up for them directly after those were finished for the other Vines, consequently it had lain several months, during which time it had heated a little (as they all did), and its vegetable matter was partly decomposed, therefore in the best possible condition to supply plant food in great abundance. The plants being very vigorous to commence with, possessing abundant roots, many of them in fact large enough to be called "under-ground stems" which were spread out as far as they could reach, and the tops being cut off, there was no outlet for the sap, and there was a plethora of it. In the case of the other Vines they were not cut down, and they had both leaves and fruit demanding to be supplied.

But I may be told that it is a very general thing to use partly decayed turf for Vines and other plants. I know it is, but in most cases there is a great deal of other material mixed with it which is supposed to be necessary, much of which, however, has the effect only of impoverishing the soil; and in this case nothing whatever was used with the turf but a few handfuls of bones, and these from some cause which I have not yet been able to fathom were all decayed, so that there was no

trace of them left to the eye in two years, and of course had the effect of feeding a soil which in some respects was already over-rich.

THE SECOND, THIRD, AND FOURTH CROPS.

In the case of the two compartments containing the Muscats and the late Grapes, the third year of their existence, or when they would be called two years old, brought the second crop of fruit. These Vines, too, had ample vigour in them, but apparently not too much. They were not cropped heavily for their size, although the weight of fruit they bore would be considered a great one for their age. The Vines now being cleared from the middle of the house, the younger ones had the full range of it, and they quickly furnished it throughout, the terminal shoots on the one side growing so as to overlap those on the other; but as the closest planted were $4\frac{1}{2}$ feet apart, the growths had in the portion of the house where they overlapped more than 2 feet between them, while the Muscats, being 7 feet from plant to plant, had of course $3\frac{1}{2}$ feet between their leading shoots. These distances are sufficient for single stems, but I do not consider them sufficient for Vines when they are older and produce strong side shoots, although it is more than the average distance given by other growers. The side shoots were treated much in the same way as they were the previous year, but as there was more room for the main stem to extend, there was not quite so much difficulty in keeping the shoots to their allotted space. The main stems now made splendid growth and ripened well, and in the autumn, judging from marks at present visible on them, about 10 feet of new wood was left on the end of each.

The two following years, 1873 and 1874, were almost repetitions of this, excepting that as there was not much chance for extension in length, more growth was allowed on the side branches; and we find on referring to the *Journal of Horticulture* for August 6th, 1874, where there is a photograph of the house, that "the Muscats are carrying a crop of six or seven large bunches each, the berries of which are so closely packed together that those who consider the Muscat of Alexandria a shy setter might fancy this was another variety."—WM. TAYLOR.

(To be continued.)

MUSHROOMS FAILING.

ON reading Mr. J. Welsford's letter on Mushrooms decaying (page 110), I felt rather pleased that the subject was brought forward in the *Journal of Horticulture*; and I was in hopes it would bring out some hints that would be useful to me as well as others, for I, like Mr. Welsford, am more perplexed over Mushrooms than any crop I have to do with.

Last October I made up a bed in the potting shed, and the material was, I thought, not in a very good state, being much too wet, consequently it became very much heated. I observed the heat very carefully until it became sufficiently lowered, and then the bed was spawned in the usual way, covered with soil, and a good layer of litter was laid on the top. In about five weeks Mushrooms began to show signs of coming. I gave the bed a good supply of tepid water, and I had from that one bed an abundance of Mushrooms for four or five weeks. The bed then seemed to be exhausted, and I gave it a good soaking of water at a temperature of about 120° , and it continued bearing again, and there are some good Mushrooms fit to cut at the present time, February 18th.

In the early part of November I made another bed by the side of the first, with what I thought at that time a material in a much better state, being drier, and not so likely to become hot. This bed was spawned at a temperature about 80° . It has been

treated the same as the first, yet we have only had two Mushrooms from it. Now this leads me to think that the cause of Mr. Welsford's beds failing is the same as my second bed—that is, the material was kept too long and turned about too many times before it was used, so losing all its Mushroom-producing qualities.

Two years ago last autumn I made two beds in a cold shed with a north aspect. They were spawned and soiled in the usual way, and then left all that severe winter. I looked at them sometimes in passing, and found them frozen as hard as a brick wall. I never expected to have a Mushroom from either of them, for I had always been taught that if a bed became frozen it would never bear any Mushrooms. In the spring I told the men to wheel both beds into the garden for manure, and I happened to be present when the men started, and the first spadeful that was taken up showed that spawn had worked all over the bed like a network. I immediately stopped all operations and had the beds covered with litter, and they turned out two of the best beds of Mushrooms I ever saw.—B. M.

To grow Mushrooms successfully I adopt the following treatment. When sufficient horse droppings have been collected we make the bed as firmly as possible. When finished a stick is inserted in the bed, and in about eight or ten days the bed will be found at a temperature of about 75° and ready for the spawn. This should be broken in pieces about the size of a large hen's egg, to be inserted 6 inches apart with a dibber. At the same time the bed is covered with about half an inch depth of sifted loam, and again made firm and smooth. A moderate supply of warm water is then given, and in about a month the bed is covered with hay about 6 inches in depth, and another gentle watering with a fine-rose pot is given.

The Mushrooms will be found all over the bed when the hay is again removed, the floors being kept damp, and the beds syringed about once in two or three days.

The best spawn I have used here is Messrs. James Dickson and Sons', which produces Mushrooms 8 to 10 inches in diameter. The Mushroom house is kept from 50° by night to 60° by day. Should your correspondent, Mr. Welsford, procure similar spawn, I feel confident he will be equally successful by adopting the foregoing practice.—G. FERRIS, *The Grange, Yardley, Birmingham*.

HELLEBORES.

REFERRING to the note you published about Hellebores at page 112, it may be of interest to a portion of your readers to add a few cultural notes. The varieties of *Helleborus niger* are the most valuable of all, the large early-flowering variety being particularly fine. We have had these and the commoner and smaller varieties constantly yielding flowers since October. I like these much better half opened than I do when further developed. The culture is simple. About every two years the beds of these are lifted, the plants divided, and again replanted in beds of four rows in each. The ground is well manured and trenched or deeply dug previous to being planted with the Christmas Roses. The beds are covered with old sashes to protect the bloom from rain and frosts. During a hard frost they are further protected by bracken or other protecting material. I always allow them to remain in the open and take the chance of frosts keeping them late.

Of other species, *H. atro-rubens* is the most beautiful. A solitary plant of this was the only representative I found here. I was so much charmed with it when it came into flower that I lifted the plant, divided it into small pieces, potted the pieces singly, and took all the care I could of them, with the result that in the course of two seasons we had abundance. The flowers are beautiful when cut, and should be set with their foliage. Unfortunately, if cut with long stalks they soon droop, but single blooms stand a long time. The other sorts are, though not so bright in their way as the above, also well worthy of cultivation. For several weeks past they have been quite gay in select herbaceous borders. Of these and some others not so attractive I had some pieces given me by a lady. These I made still smaller by division, but neglected to grow them in pots till established, and the result was that most failed to grow, and those that did grow were two or three years in forming strong plants. My failure may prove of use as a warning to others. When I divide now I can afford to use good-sized pieces. These also require good treatment, but are quite easy to manage.—R. P. BROTHERSTON.

PLANTING GLADIOLUS GANDAVENSIS.—I have been sorting the more common hybrids of *Gladiolus gandavensis* with the view of planting them in a previously prepared border to-day (Feb. 22nd). As to storage, since last October the corms remained with the foliage

adhering on a dry loft, surrounded with river sand, and in which the temperature never fell below 45° Fahr. They are now growing naturally. A few had buds half an inch long, and so far not one has been affected by mildew or injured in any respect. I commence planting the first lines now, and continue until my stock is all down in April. There is no proper ripening, as I already pointed out in your columns, without a long season's growth, and I never plant more than 3 inches deep. So much for saving, planting, and growing a flower that all might and could grow.—W. J. M., *Clenmel*.

PEAR BERGAMOTTE ESPEREN.

BEYOND all doubt this is one of the hardiest and best of all late Pears, and if there are any gardens where Pears succeed, and this variety is not included, the collection of hardy dessert fruits must

be incomplete. In the southern counties and as far north as the Trent we have seen very fruitful orchard trees of this Pear, and the fruit was of excellent quality; but it is necessarily finer from trees grown against a wall. The following is the description and origin of this well-proved and valuable Pear.

Fruit medium size, frequently above medium size, varying from 2 $\frac{3}{4}$ inches wide and 2 $\frac{1}{4}$ high, to 3 $\frac{1}{2}$ inches wide and 3 high. It is, in the smaller fruit, distinctly Bergamot-shaped, but in large and well-grown specimens it is rather turbinate, narrowing abruptly to the stalk, even and regular in its outline. Skin coarse and rough, at first of a dark green colour, covered with large brown russet dots, but as it attains maturity it assumes a dull greenish yellow hue, and the numerous large russet dots become grey; sometimes on the side that has been exposed to the sun it assumes a faint orange tinge. Eye small and open, with a dry, rigid,



Fig. 34.—PEAR BERGAMOTTE ESPEREN.

horny calyx, of no regular form, set in a pretty deep, wide, and even basin. Stalk three-quarters of an inch long, stout, and somewhat fleshy at the insertion, and placed in a small narrow cavity. Flesh yellowish, fine-grained, quite melting, very juicy and sugary, with a pleasant aroma. A most delicious late Pear, coming into season from about the middle of February and lasting till April. A fit successor to Winter Nelis. It was raised from seed about the year 1830 by Major Esperen of Malines.

LOAM FOR POTTING PURPOSES.

AS regards the value of good loam for potting and other purposes, to the exclusion of peat more especially, I agree with "SINGLE-HANDED" on page 136. In fact, he has anticipated me on the subject, as I intended offering a few remarks at this the commencement of the potting season. As in his case, we can easily procure peat in this district, but the best of it has either been exhausted or its quality has been over-estimated. Fibreless

peat I consider valueless for potting purposes, especially if it contains no sand, and consequently found it necessary to obtain some superior peat from a distance. This was employed principally for hardwooded plants, such as Azaleas, Epacrises, Ericas, and Eriostemons, while the majority of other plants, choice or otherwise, were given a greater proportion of loam than I have seen recommended to be used before. The results in every case may not have been quite so satisfactory as might be wished, but on the whole convinced me I am on the right track, and fully warrant me in advocating the practice. This season we hope to do still better, though perhaps not better than those who adhere to the orthodox mixtures. To those who may have to purchase loam the subject may be less important, though even in their case it is a moot point whether it is not advisable to use less peat and more loam in their composts. Where, however, as in our case, turf can be had for cutting, I should say, Use more of it and save outlay on peat.

As "SINGLE-HANDED" points out, loams vary greatly, and

submits advice upon the selection of the most suitable. Now it often happens employers, or those under them, are by no means indulgent with regard to gardeners cutting turf for potting and other purposes, and in not a few cases the gardener has to be contented with the soil immediately below the turf—that is to say, the turf has to be pared off, a thin layer of soil taken from beneath, some other soil returned, and the turf relaid. Loam thus procured proves excellent for Melons and Cucumbers, and has to be employed for potting purposes, but being comparatively fibreless is unsuitable, and more skill is required in the management of plants growing in it. Few are allowed to select turf, but have to be contented with a corner or a strip near a hedge where it will not be much missed and be easily carted away. To a certain extent gardeners are to blame for this state of affairs, as they not unfrequently study their own interests, and without any regard to the after appearance or value of the land stripped. Supposing the turf be cut rather thick and the surface soil be thin, the strip cleared will remain barren for years, and the crop of weeds which inevitably result may well be an eyesore to those who own the land or are responsible for its good appearance; whereas if the surface of the stripped land be forked over and a good dressing of the commonest garden soil spread over, and either sown with grass seeds and well rolled, or planted with small pieces of turf, say about 6 inches apart, not much harm will have been done, and the gardener will be allowed turf as required.

For potting purposes I do not covet a rich heavy loam, but would rather be allowed to pare some of the mounds to be found in most old pasture meadows. This would be full of fibre, and could be enriched at pleasure. The turf we have actually to deal with is taken off heavy clayey loam, and this, if fibre was more abundant, would be most satisfactory. It is cut rather thick and in the autumn. No attempt is made to enrich it by alternating it with layers of manure, as we prefer to have the latter in an open shed, and the loam in one heap ready for anything and everything. If we wish to make it rich it is easily done either at potting time or later on by means of liquid manure. Not a particle of it is wasted, as, although we knock out much of the fibre when preparing composts for choice plants, this is employed either for propagating, potting off bedding plants, surfacing Mushroom beds, and mixing with soil for early vegetables.

Much importance was at one time attached to particular mixtures of soils for certain plants, and still is, the older race of gardeners concocting these oftentimes with closed doors, for fear of the secret leaking out. All this is being gradually altered, and the fact is becoming generally known in how few cases any particular mixture is absolutely necessary. The soil may play an important part in any success, but much more depends upon the intelligence of those operating, especially when loam is freely employed. Not only must the drainage be good, but great care must be exercised in watering, and overpotting must be guarded against. Both these sources of danger, however, when fully understood, will prove advantages, and where the soil is largely composed of loam liquid manure may be more safely applied. I have never been very particular in my mixtures of soil. At the present time the greater part of our plants are growing in a mixture of two parts turfy loam to one leaf soil, and decomposed manure with coarse sand freely added. It is generally advisable to add a little lime to destroy worms, which are very plentiful with us, and we also employ charcoal, and drain most carefully in the case of the choicest plants. At first those growing in a peaty soil did not root freely in our loamy mixture, but eventually they were established. We rather overpotted young Gardenias, but I am confident these—Stephanotis, Dipladenias, Bougainvilleas, Allamandas, Clerodendrons, Rondeletias, Crotons, Caladiums, Eucharises, Euphorbias, Dracenas, Begonias, Pancratiums, Abutilons, Marantas, Gloxinias, and many more equally as choice or commoner plants—can be grown without any peat. In addition to these we have a number of *Adiantum cuneatum*, *A. gracillimum*, *A. farleyense*, *A. tenerum*, *A. formosum*, and *A. concinnum*, *Davallias Mooreana* and *D. dissecta*, *Gymnogramma chrysophylla*, *Dicksonia antarctica*, and other Ferns; *Selaginellas*, *Cordylines*, *Asparagus plumosus*, &c., growing in soil with but a small amount of peat incorporated. We always endeavoured to have the soil when potting in a semi-dry state, and do not place it in boxes and baskets over the hot-water pipes or in a stovehole to become warm, but prefer to warm the heaps with heated bricks, thus avoiding unduly crumbling and baking the fibrous turf.—W. IGGULDEN, *Marston*.

RHODODENDRON ARGENTEUM.—In the temperate house at Kew two fine plants of this handsome *Rhododendron* are now flowering. This species appears to be the first of the rich collection of Hima-

layan species to expand its flowers. One plant has thirty trusses fully expanded, and each truss produces from twenty-five to thirty flowers. The blooms are about 2½ inches in diameter, of a bright rose-colour when in bud, and by the time they are fully expanded are a creamy-white colour, with streaks of purple in the centre—W. K.

WINTER MIDGES.

THESE little creatures that are frequently to be seen flying in troops about sheltered spots in gardens when few insects are astir are commonly supposed to be indicators of approaching fine weather. From my observations upon them I can scarcely say that their appearances are of much import as a weather prognostic, but they seldom come forth if there is rain or snow falling, or about to fall speedily, and they have a marked preference for calm weather. One circumstance is particularly notable—that they like to perform their aerial dances by twilight, though they may sometimes be seen at various hours of the day. I imagine they give the preference to the evening shades because then any hungry birds are unlikely to attack them, roosting time having arrived.

These midges, two-winged flies, mostly of the genus *Chironomus*, are produced from maggots that feed upon dung and refuse, hence in no way injurious to the garden. But it is difficult to understand where these winter parties come from and where they go to afterwards, for we cannot think they have only just emerged from the pupal stage of life. On Sunday, Feb. 19th, I noticed a party of these, which must have consisted of several hundreds, disporting in a nook formed by an angle of a paling, though they now and then rose above the level of the paling, and as high as 8 feet from the ground. On watching them it was perceivable that they executed three kinds of movements; generally they went round and round in a mazy circle, but occasionally they went up in a body and again descended. Also they sometimes performed a spiral dance, revolving, while moving up and down a foot or two.—J. R. S. C.

EARLY PEAS.

AT all times of the year Green Peas are very acceptable, but the earlier in the year they can be had the more they are appreciated. For our earliest supply—i.e., from January to March, when lamb is plentiful and Peas are scarce—we shall undoubtedly always have to depend on Spain, Portugal, and other countries in the south of Europe for Peas, because sunshine is necessary to their well-being, and without which they cannot be brought to maturity. No matter what degree of artificial heat they may be growing in, if this is wanting failure, or at least only partial success, is sure to be the result. It is only, therefore, waste of time, labour, and trouble to attempt forcing them too early in our climate. They may, however, be had by the first week in April, and where the resources for forcing are ample they may in that month be produced in abundance; but where proper structures and appliances are wanting the idea of Green Peas in April worth the name ought not for a moment to be entertained. As regards the best kind of structure for growing them in at this period of the year little need be said. Suffice it to say that it must be very light, with ample ventilation top and bottom, together with a sufficient amount of piping to be able to command a temperature of from 50° to 60°. Although the latter degree of heat should not be attempted to be maintained in the absence of sunshine, it may with the aid of the sun be exceeded 5°, or even 10°, but beyond this it is not safe to go if the best results are desired.

We now come to the question as to which are the best varieties to grow under glass. Many prefer the dwarf-growing kinds, such as McLean's Little Gem and Blue Peter. These are very well in their way and very accommodating, for the simple reason that they may be grown on shelves close to the glass and require no staking; but strictly speaking they are not the most profitable for an early supply, and for the reason that many pots must be grown to afford a good dish. They will do very well for frame culture but not for pots. If a prolific crop is desired recourse must be had to the tall varieties; and, speaking from experience, I can honestly say there is none better than William I. By making a sowing of this variety the first week in January they will be fit to gather the first week in April—that is, supposing they have not been grown in too high a temperature with insufficient ventilation, as the flowers are almost certain to come blind. My method consists of sowing eight Peas in a 3-inch pot, the same being filled with good turfy loam and leaf soil. The seed is covered with about half an inch of finely sifted soil, and after being well watered the pots are placed over the hot pipes. Here they remain four or five days till the seed germinates, then they are placed on shelves near the glass. In a fortnight from this time they are again shifted into 10-inch pots, employing as before a compost

consisting of good turfy loam and leaf soil, and adding thereto a little well-decomposed manure. When large enough they are stopped, and tied, and watered with liquid manure twice a week when the pots are full of roots. It seems almost unnecessary to say that when in flower they must have abundant ventilation.

Having briefly alluded to Peas in April I will now take the month of May. For a supply in this month we shall have to depend on the dwarf-growing kinds mentioned previously; as they are to be grown in frames they now become indispensable. For gathering the first fortnight in May the frames should be placed on beds about 2 feet high of warm dung and leaves; fill in the frames with 9 inches or a foot of soil such as is used for those grown in pots; sow about the middle of January two rows in each light. The after management consists of ventilating and supplying water when needful. The succeeding crops may be grown in frames without the aid of warm dung, and the seed sown a few days later. We next take June, and in this month Peas become, comparatively speaking, plentiful. To have them fit to gather by the first week in June in the southern and midland counties is not by any means a difficult matter, but in the north it is otherwise. By far the best method of obtaining the earliest supply outside is unquestionably that of sowing the seed on strips of turf the first week in February and planting out on south borders about the middle of March, after having been duly hardened off, and protecting with Spruce branches in cold weather and frosty nights.—ET CÆTERA.

ZONAL PELARGONIUMS AND CARNATIONS FOR WINTER FLOWERING.

PELARGONIUMS.

Now is the time for those who desire a good display of these two beautiful flowers during the ensuing winter to make preparations. Select or buy small plants of suitable varieties of Pelargoniums, and grow them liberally so as to have strong plants ready to shift into 6-inch pots by the end of May or early in June, employing good turfy loam with a little leaf soil, a sprinkling of coarse sand and bonedust mixed together and used rough. Pot firmly and stand them out in a sunny position, and attend carefully to watering and repotting as growth advances if large plants are desired, removing the trusses as they appear, and stopping any excessively strong shoots. Discontinue removing the blooms after the last week in August or early in September, and at the end of the month or early in October house them where a little fire heat can be given, if necessary, to exclude damp. A top-dressing of good artificial manure will be beneficial, or weak guano water may be supplied; and if the plants can be assigned a light position and a temperature of 50° to 55°, suitable varieties being selected, they will give a more beautiful and varied display of flowers at a time when such are most valuable than any other plant that I know. I have found the following varieties succeed well in winter—Rev. A. Atkinson, Colonel Seely, Lizzie Brookes, Hettie, Henry Jacoby, Dr. Orton, Beatrix, Aida, Louis, S. Plimsoll, Lumen, Niobe, White Vesuvius, Correggio, Commander-in-Chief, Lizard, Laura Strachan, Mrs. Strutt, Lady Sheffield, Remus, Mrs. Leavers, Eva, and Atala.

CARNATIONS.

Cuttings of Carnations should be taken as they can be obtained, or the side shoots may be slipped off with a heel, inserted in pots of sandy soil, covered with a bellglass, and plunged in a gentle heat. Roots are soon formed; then pot the plants singly in 60-sized pots, keeping them in moderate heat and close to the glass, shifting them into 4-inch pots before they become root-bound. Pinch out the point of the shoot as soon as they are well established in the 4-inch pots, which will cause them to break freely, then place them in a cold frame and gradually expose them to more air till the lights can be withdrawn. Transfer them to their large pots early in June, employing soil similar to that described for the Zonal Pelargoniums, having it rather dry and potting firmly, draining well. Stand them out in an open but rather sheltered position, or the winds are likely to snap off the shoots, unless staked securely. For the weaker growers, such as La Belle, place some stakes round the outside of the pots, training the growths round them; for the bushy growers some small spray of Birch or Hornbeam round the pots is preferable to stakes. Supply water carefully, and fully expose them to the sun all the summer to ripen the wood, or they will not flower freely. House them at the same time as the Pelargoniums, giving them a light position and free ventilation, and they will amply repay at Christmas and onwards for the trouble taken. I find they are benefited by a little weak liquid manure. The following are the best varie-

ties I know—Miss Joliffe, Guelder Rose, La Belle, A. Alegatière, Rose Perfection, and Grenadier.—W. WALLACE, *Yardley*.

PLANT LABELS.

BEING an amateur gardener who often plants two or three hundred plants or bulbs in a day, and does it in a great hurry, and as most of them require marking, I am much interested in the plant-label question. I was glad to see Mr. Wilson's explanation of the object of his prizes, which I understand to be, not the production of an elaborate label suitable for public gardens, but something which will help the poorest amateurs by its cheapness, and will take the shortest time to prepare and inscribe, and the longest to perish or become illegible. Few persons have made more experiments in search of such a label during the last two years than I have. An imperishable smooth paint to which no dirt will adhere, but upon which a common lead pencil will make an imperishable mark, is now the only desideratum which prevents the attainment of my object; but I fear that this will be difficult to find. The common wooden labels in damp soils hardly last six months. I have tried to make them durable by soaking alternately in solution of copperas and in lime water, but after this no pencil mark will last upon them. I have tried dipping in creosote, but they will then take neither paint nor pencil mark. Besides, these wooden tallies must either be of objectionable size or be so fragile as to be easily broken. The two-legged labels, made of a small block of wood fixed horizontally on upright strong wires, are good labels, but not convenient for using in large quantities, and rather troublesome to prepare. I prefer a single piece of strong wire with a perforated label attached to it perpendicularly by finer wire, as shown in the enclosed specimen (fig. 35). So far I have little difficulty; but the kind of wood, and still more the kind of paint, is an important question.



Fig. 35.

I am of opinion that no label can be considered satisfactory until it has been tried for at least a year both in the open air in a damp soil, and in the confined air of a greenhouse or frame. The first will prove its power of resisting the combined attacks of dirt and weather, the latter will test its capability for resisting mildew. I am sorry to find that boxwood, even when painted, is so liable to mildew as to become in a close frame quite discoloured and illegible in two or three weeks. I am trying different distemperings for it, one being a solution of chloride of zinc, in which I soak the labels for a week, and I shall certainly try also Mr. Wilson's plan of soaking in paraffin, if I can get the paraffin; but I think that deal, or some

wood less liable to mildew, would be preferable.

The paint I have lately been trying is a thick mixture of yellow chrome and spirits of turpentine. This is durable, and shows pencil marks well, though an army of two or three thousand bright yellow labels before the windows in winter has rather a flaring effect, however lively it may look, and I should prefer something like a neutral tint. Then this yellow paint is not proof against soot, and we poor gardeners in whose gardens slugs swarm, must protect our plants with soot, and unless we have a paint from which the rain will wash soot the labels are made illegible. I am willing to adopt any suggestion, and to do my best to test any composition which is likely to answer the desired purpose; but I must add that any material such as zinc, which requires the use of ink, and does not admit of the labels being hastily inscribed on the spot in which they are used, would be of no service to gardeners of my habits, of whom I know several.—C. WOLLEY DOD.

[We figure Mr. Wolley Dod's label because we think it good in principle, and in the hope that improvements may follow, so that a simple, cheap and durable method of preserving the names of plants in the open air may be devised.]

SAWDUST FOR PROPAGATING.

THE season for rapid production of plants has again arrived, and I wish to draw attention to sawdust as the best material to insert cuttings in that I have yet tried. Mr. Thomson of Drumlanrig has more than once recommended this material as very

cheap and most effective for the purpose, and this season I have given it a good trial. Other materials I have used are coarse sand, leaf soil (in dung frames), and occasionally growing sphagnum moss all good for the purpose, but not so satisfactory as the sawdust that I am using, being chiefly beech dust. I am rooting bedding plants, as Iresines, Lobelias, Ageratums, Petunias, Coleuses, Dracænas (eyes and tops), Roses, Carnations, Tomatoes, Cucumbers, Indiarubber Plants (eyes and tops), Pelargoniums, and, in fact, any plants I wish to strike. I have no losses and little trouble, but I can command a strong and steady bottom heat—a point of importance.—A NOR'EASTER.

NOTES AND GLEANINGS.

MR. MANN, head gardener to Mrs. Hornsby of St. Vincent's, New Somerby, well known as a most successful exhibitor at many horticultural exhibitions throughout England, delivered a LECTURE ON HORTICULTURE in the school-room, New Somerby, recently, in connection with the New Somerby Literary Institute. The lecture was most useful and interesting, comprising a general review of the most important gardening operations, with especial reference to window gardening. The Rev. W. Nash of Somerby Rectory, in drawing our attention to this, observes that "other head gardeners should in their own neighbourhood give similar lectures, and thereby encourage horticulture, kitchen, fruit, and window gardening. I am sure such kindness on their part would be greatly appreciated, and work much benefit amongst the inhabitants."

— WE are informed that the BURTON-ON-TRENT FLOWER SHOWS are fixed for June 21st and August 23rd.

— A CORRESPONDENT sends the following note in reference to LETTUCE JEFFERIES' LITTLE QUEEN—"I have found this variety most useful for early and late crops, coming in much sooner than any other kind, and possessing a fine flavour. For summer use I find Alexandra White Cos to be the most useful when procured true."

— AS an example of the rapid advance of the season in the south, especially in the neighbourhood of London, we may note that in several gardens we have seen ALMOND TREES flowering most profusely. The blooms of this beautiful tree are usually very abundant, but this season they appear even more numerous than is generally the case, and many villa gardens that contain a few specimens are rendered extremely gay for a short period. Amongst the sombre Laurels the dingy Aucubas, and sundry other evergreen occupants of town gardens, the Almond when in flower is most striking.

— MESSRS. JONES & SONS of Shrewsbury, writing in reference to the paragraph respecting the ROMAN HYACINTH (page 154) observe—"We expect the creamy white Hyacinth seen in Covent Garden thirty years ago is the white Italian of the present day. It is rather later than the white Roman, but produces much larger flowers. It is very useful for bouquet-edging and wreath-making, as the flowers are all produced on one side, so none are hid. In price it is about the same as Romans."

— W. HARKER, Oakwood Lodge, Epsom, referring to MARECHAL NIEL ROSE ON ITS OWN ROOTS, writes—"Last April, when cutting back an old cankered tree on the Briar, I layered a strong branch about three years old in a large pot; by September it was well rooted, and was then planted out with many buds on that opened well. When it was cut from the parent plant it never flagged in the least. Now it has over fifty flowers and

buds, and has made one shoot 6 feet long and one nearly 2 feet. The old tree has scarcely shown a bud yet planted in the same house. I have layered two other branches of Maréchal Niel, and intend to try a few others to get some strong plants for forcing. It might be useful to some of the many readers of the *Journal of Horticulture*, who have old trees that are much cankered and show signs of dying, to know that they can save at least part of their old friends."

— "M. F. W." writes—"As many readers of 'our Journal' often see the USE OF SULPHUR recommended, it may interest them to know that it is not the yellow sulphur, but the common brown, which is unpurified, that they should use. I learnt this from a well-known Rose-grower, who informed me that the process of purifying takes away the very properties which destroy mildew and other pests."

— MESSRS. THOMAS GREEN & SON announce a new LAWN MOWER, termed "Multum in Parvo," which is adapted for mowing the small grass plots of villa residences, &c. It is also adapted for mowing verges, borders, edges of walks, &c., and is stated to be, as no doubt it is, an excellent garden appliance. They also announce considerable improvements in their grass-edge clipper for cutting the overhanging grass on the edges of walks and flower beds. Their lawn-tennis marker is also said to be very effective in its work.

— A NEW monthly gardening journal has appeared in Berlin called "GARTEN-ZEITUNG." It is edited by Dr. L. Wittmack, than whom there is no one more competent for the work, and judging by the first three parts now before us both the letterpress and the illustrations are well done. Each part is illustrated by a coloured plate and many woodcuts.

— GARDENING APPOINTMENT.—Mr. David McIntosh, late foreman at Bloxholm Hall, has been engaged as gardener to Capt. N. Reeve, Ashby-de-la-Laund, Sleaford.

— MR. J. CLARKE, Brynkinalt, Chirk, writing in reference to the GLOXINIA, observes—"I can with pleasure freely endorse the statement made by your correspondent, 'CREDENDA,' p. 128, on the above plant for winter flowering. I had the pleasure of seeing a grand lot about a month since at Englefield Park near Reading, the seat of R. Benyon, Esq. They were handsome plants, very healthy, and flowering profusely in 48-size pots, all superb varieties. The seed, I learned, was obtained from Messrs. Sutton and Sons, Reading, and great credit is due to Mr. Coombes, the gardener at Englefield, for his judicious and highly successful mode of culture."

— A COPY of MESSRS. CARTER & CO.'S "PRACTICAL GARDENER" is now to hand, and contains much useful instruction upon plant, fruit, and vegetable culture. We are informed that in the course of the eleven editions of this work 100,000 copies have been issued—a sufficient indication of the demand and general appreciation. The present edition is much larger than the preceding, and has been previously referred to at greater length in these pages.

— AN elegant little plant that is by no means well known is PHILODENDRON CUSPIDATUM, and when in good condition is a valuable addition to any collection of stove plants. The leaves 3 or 4 inches long and about 2 broad, ovate in form, the apex tapering very gradually like *Ficus religiosa*. The upper surface of the fully developed leaves is of a rich deep green colour, and possess a glossiness resembling velvet. The under surface is purple, the young leaves being of a most delicate light green hue. The best way to grow the plant is to train it round the stem of a Tree Fern, where it can be liberally supplied with water. If a portion of a Tree Fern stem a few inches in diameter and 2 or

3 feet long can be obtained, one end should be placed in a large well-drained pot, filling the space between the stem and the sides of the pot with peat and small potsherds, in which the roots of the plant must be placed. Another species of similar habit and best treated in the same way is *P. melanochrysum*. In that, however, the veins are much lighter than the body of the leaf, and therefore stand out conspicuously.

— IT is surprising that the old and beautiful *ABUTILON INSIGNE* is not more frequently seen in gardens. Its richly coloured flowers are produced so freely and so continuously that the plant is unattractive but few months in the year. In January and the present month, perhaps, the beauty of the flowers is most notable, the crimson veining on the corolla rendering them quite distinct from all others in the genus. Trained to the rafters of an intermediate house the plant succeeds particularly well, the flowers being pendulous on long peduncles that admirably fits them for cutting and arranging in stands.

— A CORRESPONDENT of the *Irish Farmers' Gazette*, referring to PEAT CHARCOAL, is "very forcibly impressed with its great value both in the farm and the garden, as well as with its superiority over wood charcoal for nearly all purposes. For all domestic uses, save as fuel for exceptional culinary heating, for all farming purposes without exception, and for all gardening operations, except, perhaps, Orchid-potting, the advantages which peat charcoal possesses can scarcely be gainsayed. As a component in Vine borders and composts, and in the culture of pot plants, gardeners are not insensible to its value; but its extension to and more general employment in kitchen garden, fruit garden, and flower ground would, we think, be attended with equally satisfactory results. The process of preparation is a very simple one, and differs but little from the familiar farm operation of burning 'beatin,' as it is called. A base for the pile having been formed with a slight rise towards the centre, where a hollow shaft is formed to create a draught, when firing the pile, by inserting three billets of split wood triangular fashion; or this temporary chimney may, too, be formed by an arrangement of the turves in building up the mound. The turves are piled on end in the form of a blunt conical mound; this is closely covered with mould and overlapping sods, so as to prevent the least access of air except at the apex, which should be left uncovered till the pile is ignited. This is done by leaving three or four small openings at the base of the pile and firing them. As soon as combustion has fairly set in these and the aperture left at the top to secure a draught should be closed, and the covering everywhere made so close and secure as to be entirely airproof. To guard against the least access of air is the important point in the operation, and one which requires the greatest vigilance, as any failure in this respect would encourage active combustion and spoil the work. It may be added that charring all sorts of garden *débris* and refuse is one of the very best ways of disposing of and utilising it, and indirectly of keeping in check insects, slugs, and other garden pests."

— A WRITER in *The Gardener* gives the following particulars of his mode of cultivating *SCHIZOSTYLIS COCCINEA*—"This very bright and useful plant flowers throughout the winter months, and is grown in many gardens as a decorative pot plant. I have grown it generally as a producer of flowers for cutting purposes. In either case its culture is simple enough. If for flowering in pots the plants can be grown altogether in pots, or during the summer months planted out and transferred into pots in autumn. In any case strong growths must be selected in order to secure strong flowering spikes and plenty of them. As I could not have too many I had a deep frame of four sashes made to cover a bed of these throughout the winter, and have found this a very cheap way of getting plenty of crimson spikes of flowers in ordinary winters. Last winter and the winter previous proved too much

for the spikes, and we cut very few. This year, however, they are again in plenty. The way I do is this: Beginning of April the old plants are lifted, the ground manured thickly, all the small and weakly growths cleaned off, and five or six strong growths allowed to remain as a clump. The clumps are put in 9 inches apart in rows 1 foot apart. The planting proceeds with the digging, and if the weather is dry a good drenching of water is given as they are planted. During summer an occasional hoeing is of advantage. By the middle of October the frame should be placed over the bed, and the sashes in readiness to put on in case of frost; if wanted early the sashes may be put on in order to forward the spikes. When the first four flowers are open on a spike it may be cut, and if kept in water and in a room not over-hot the other flowers will unfold. After the past severe winters it may be concluded that this flower is hardy, though, of course, special care is necessary, as with the *Chrysanthemum*, in order to secure its flowers from the effects of frost."

APPLES.

BUSHES AND PYRAMIDS ON PARADISE STOCKS.

(Continued from page 91.)

BY way of experiment I planted two rows with a bush and a pyramid alternately, in order to prove conclusively the real merit of each method of training, all of them being grafted upon Paradise stocks. Many of the bushes, some trained in the form of a basin, others more erect, in the form of a goblet, have answered well; but the pyramids, while yielding fruit as abundantly as the best bushes branch for branch, and more abundantly tree for tree, by reason of their larger size, or rather from the greater number of their branches, are so decidedly superior in appearance, that I shall plant no more bush-trained Apple trees.

Two only of the bushes may be said to be really ornamental—a Margil, a charming little tree, wonderfully productive, bearing fruit freely every year; fruit that is as delicious to the palate as it is attractive to the eye, coming into use in October and continuing good well into the present month, the few that are now left being as firm and fresh as when picked from the tree. Its blossom is said to suffer from frosts, but I have ample reason to regard it as singularly hardy, for the tree stands out upon a quarter of the kitchen garden and has nothing to shelter it in spring, yet it has never failed to bear a fair crop since it commenced fruiting several years ago. The other bush which I have specially mentioned is a Lord Burghley. It, however, has come very slowly into fruiting, and bore a moderate crop of fruit last year. The fruit is handsome, of medium size, crimson on the outer side, of fine flavour, very juicy, with firm flesh, and keeps well. It is an excellent new sort, worthy of a place among the choicest dessert kinds. Boston Russet is a fine sturdy bush with growth of remarkable vigour. It had an abundant crop of medium-sized fruit, which keeps well, and is very sweet, rich and juicy. It is one of the best late dessert fruits. Wormsley Pippin is another excellent bush, with clean healthy growth, and is so easily trained that it would evidently make a good pyramid. The crop was a good one, the fruit large, and excellent for cooking purposes in autumn. Old Nonpareil is trained both as a bush and an espalier, answering tolerably well both ways, but its fruit is so decidedly second-rate in flavour that I cannot recommend it. A word of praise must be given to a neat little pair of bushes of Golden Pippin, which had a good crop of its pretty little golden Apples. Pitmaston Golden Pippin ought to have been mentioned among the espaliers, for it is certainly a valuable variety for the table of a connoisseur, handsome and richly flavoured. Sturmer Pippin is a bush of sturdy erect growth, well set with fruit buds, and it had a fine crop of its valuable fruit last year. None of it has yet been used, for from its present appearance it will probably prove to be our latest dessert kind. Its season is stated in the "Fruit Manual" to be from February to June, but judging from one I have just tasted it will not be fit for use for another fortnight.

Golden Winter Pearmain, better known perhaps by its synonym King of the Pippins, is a very fine bush, with very robust growth thickly set with spurs in excellent fruit-bearing condition. It had a heavy crop of its handsome high-coloured fruit, which was useful in autumn and early winter. I have had this old favourite as a standard, dwarf, pyramid and espalier, in various soils and situations, and it has invariably proved free-growing, healthy and prolific. As a market sort it is invaluable—precisely the kind of fruit a salesman likes a heavy consignment of. Bright yellow and

crimson, of medium size, very juicy and sweet, it is always in demand while in season.

Cox's Orange Pippin is pre-eminent among the pyramids, spreading wide and high, amply filling its 10 feet of space, and bearing abundant crops of fruit so handsome and so pleasant to the palate that we cannot wonder at "WILTSHIRE RECTOR'S" amusing preference for it. The fruit of three trees in the kitchen garden enjoying the full benefit of a highly cultivated soil is very large, of a pale yellow hue slightly tinged with red on the exposed side, and the flesh is tender, very juicy, and has the rich aromatic flavour fully developed. It ripens early, but does not keep well, and affords a singular contrast to the fruit of a dozen trees growing in a poor soil largely impregnated with oxide of iron. These trees are not half grown, and yet are so prolific of fruit that mention has been made of them as remarkable examples of early fruiting. No doubt the peculiar nature of the soil is the cause, as it is also of the peculiar high colour of the fruit, all of it being of a deep crimson, comparatively small, the flesh firm, and keeping so well as to form an admirable succession to the larger fruit.

Beauty of Kent is so vigorous that it has become almost too large for the space assigned it. Root-pruning would tend to check its growth, and has been resorted to this winter, but I avoid it as much as possible, for a healthy tree cannot have too firm a hold of the soil. It came slowly into fruiting, but the magnificent fruit is worth waiting for; all of it is large, some measuring 12 inches in circumference. It is very tender, juicy, has brisk pleasant acidity, and is certainly one of our best winter kitchen Apples, continuing good into the present month. Brabant Bellefleur is of equally robust vigorous growth. The tree is a fine one in perfect health, and also came slowly into bearing. The fruit is very large and handsome, of a rich yellow now, and much of it has a bright crimson hue on the exposed side. It keeps well and is much valued for cooking, being juicy, sweet and rich.

Hubbard's Pearmain.—Of this valuable winter dessert Apple I have two handsome pyramids, very symmetrical, with clean healthy growth, well furnished with fruitful spurs. The crop was abundant, and has proved very useful. I have still about a bushel of it in excellent condition, and regard it as one of the best winter dessert Apples, very rich in flavour, and so distinct in form as to be easily recognised. Kedleston Pippin is a handsome tree in full bearing. Its small yellow fruit is firm, crisp, juicy, sweet, and of pleasant flavour. It came into use in December and keeps well. Ashmead's Kernel.—This is a fine pyramid of sturdy clean growth, with plenty of fruit buds, and it had a full crop of small yellow-hued fruit slightly tinged with red. It is rich in flavour, very juicy, and is now in perfection. It is an excellent winter dessert Apple. Mannington's Pearmain is a small pyramid of spreading habit of growth, very prolific, its pretty small fruit clustering thickly upon every branch. Its flesh is firm, crisp, sweet, rich and juicy. It comes into use in November, and keeps so well that it may be said to be good throughout winter. Lodgemore Nonpareil, a healthy pyramid of a singularly dense bushy habit. It comes slowly into fruiting. The fruit is small, yellow, of a brisk pleasant flavour, with firm flesh, and keeps well. Bess Pool is a fine healthy tree of free vigorous growth, in full bearing. The crop was an abundant one of handsome bright-coloured fruit of pleasant flavour, which keeps well, and is in excellent condition now. It was one of the earliest to bear fruit. Barcelona Pearmain, a small tree fruiting well. The fruit keeps well, but is only second-rate in flavour.

Pomme d'Api.—This soon became a handsome pyramid, and began bearing its pretty little fruit proportionately early, but canker soon attacked it, and spread so fast that the tree is almost dead. It evidently requires a deep rich soil, where it would prove very attractive, its clusters of bright red fruit being very ornamental. Cobham is a monster pyramid, bearing fine crops of its handsome fruit, which bears a close resemblance to Blenheim Pippin. It is good either for cooking or dessert. Emperor Alexander.—This is a very vigorous tree, and is a shy bearer in its youth, but I have had old trees of it that bore fruit freely enough. The fruit is useful, being large, tender-fleshed, juicy and sweet. It kept good well into January this winter. Early Harvest has disappointed me. It has a close unsightly habit of growth, and is a very shy fruiter.—EDWARD LUCKHURST.

(To be continued.)

THE CRAIGLEITH NURSERIES, EDINBURGH.

YOUR correspondent "A NORTHERN AMATEUR," completed his round of visits to the homes of florists' flowers at Edinburgh, the nurseries of Messrs. Downie & Laird giving him ample scope for his pen. To those who are fond of the above class of flowers

there is at all times from June till autumn abundance to admire at Pinkhill. Recently I had business which called me to the northern metropolis, and I took the opportunity of calling at one of the numerous nurseries for which this city is famous, and which, though one of the latest established, has already taken a foremost place in the trade. The one I refer to is that of Messrs. Ireland and Thomson at Comely Bank. Though this firm does not make a speciality of florists' flowers, it was interesting to find that they are by no means neglected. A full collection of Phloxes is grown, also Carnations and Hollyhocks, the latter apparently free from disease. In a warmer house Dahlias were laid-in to propagate from, and included the best exhibition varieties. Mr. Thomson finds a good demand for these and other hardy florists' flowers, while herbaceous plants pay so badly that he talked of throwing the whole collection away.

The most attractive feature at this season, however, is the collection of Crotons. One good-sized span-roofed house is filled with these, and a most effective display they produce. Down the middle of the broad centre stage is a row of specimen plants, and notwithstanding the numerous forms that have been added of late years none look more attractive than the old *C. angustifolius*. Amongst dark-coloured sorts *Etna* is the most noteworthy. The remaining portion of the house is filled with fine vigorous plants in all sizes from half-specimens to those in 4-inch pots. I expressed some surprise at so many of these plants being grown, and especially large specimens. My attention was at once drawn to a number of half-specimens with a piece of matting tied to each, which were all sold.

In the propagating houses were more Crotons, and amongst them some new varieties which are to be distributed this spring. These comprise *C. Thomsonii* and a beautiful broad-leaved sort, the leaf being of a soft yellow colour; *C. Archibaldi*, an improvement on the well-known *C. Weismanni*; *C. Lord Chelmsford*, a narrow-leaved red-and-yellow-coloured sort; and *C. Whittoni*. These have all received certificates.

Dracanas are almost as numerous represented as Crotons. Amongst them are some seedlings, which promise well. A collection of Orchids is being formed. The cool house contains all the best of this section, some fine examples of *Odontoglossum Rossi majus* being in flower, as also some *Masdevallias*, *Cypripedium Boxalli*, and *C. insigne Maulei*. The old *C. insigne* was represented by large specimens, and *Cælogyne cristata* with hundreds of pseudo-bulbs in each pan. In the warmer house were numerous healthy plants of *Cypripedium Veitchi*, *C. Lawrencianum*, *C. Argus*, &c.; *Phalænopsids*; *Dendrobiums* in many kinds; *Cattleyas*, such as *C. Trianae*, *C. Mendelli*, *C. Warneri*, *C. labiata speciosissima*, a beautiful summer-flowering variety, abundance of *C. Eldorado splendens*, and a fine batch of *Lælia purpurata* just starting into growth. A good collection of *Saccolabiums* and *Aerides* is grown; amongst these young plants of *A. Lehmanni* were producing spikes freely. In this house are two plants of *Anthurium Andreanum*, which Mr. Thomson claims to be the largest specimens in the country.

In one of the cool houses are some very strong plants of *Lapageria alba*. A cold house contains hundreds of Vines in pots. This structure is to be filled by-and-by with Pears in pots. One of the cool houses is devoted to Heaths and other hardwooded plants. These are of all sizes, and, like the other plants in the nursery, are in perfect health.—B.

AMARYLLISES AT CHELSEA.

MESSRS. J. VEITCH & SONS, it is generally known, have in recent years given much careful attention to the improvement of those handsome and brilliant plants the Amaryllises, or, more correctly, the Hippeastrums. From time to time visitors to the chief meetings of the Royal Horticultural Society during the early months of the year have witnessed some of the results of these efforts in the hybrids shown and certificated. Occasionally, too, a large group of the best forms has given an idea both of the range of variation and the great advance which has been made in obtaining rich and diverse shades of crimson and scarlet, with considerable improvement in the form and substance of the flowers. Such, however, would convey but a very imperfect idea of the display now provided in Messrs. Veitch's Chelsea nursery, and where for several weeks the Amaryllises will form the chief attraction. Upwards of seven hundred scapes are developing and bearing fully expanded flowers, some hundreds of which are already open, although it is yet rather early for the majority. These are arranged in a fine span-roofed house entirely devoted to them, 70 feet long by 20 feet wide, in two divisions, the centre being occupied with a broad flat stage on which most of the plants in flower are placed, the side stages bearing those not yet

sufficiently advanced. A large proportion of the plants are new forms obtained by judiciously crossing the best of those previously in cultivation, and in nearly all cases they show either a marked improvement upon the parents or remarkably distinct characters, which render them worthy of the attention of all who admire this beautiful race of plants.

Foremost among the most notable varieties is John Heal, which was exhibited at Kensington and certificated last year. It has unquestionably the finest formed flowers of all, the petals $3\frac{1}{2}$ inches broad, rounded, and the whole flower possesses surprising substance. A broad band of crimson extends down the centre of each petal with a margin of white. Sir Garnet Wolsley is a superb variety with well-formed flowers of a deep rich scarlet

hue. Madame A. Sterling is one of the most effective; the flowers are large, the petals being rich crimson in the centre and white on the margins. Another valuable character this possesses—namely, its floriferousness, one bulb about four years old having two scapes each bearing four flowers. James Douglas has handsome scarlet flowers, the colour remarkably deep and the form good. Firefly is another noteworthy scarlet-flowered variety with very large and striking blooms. Ajax has broad deep crimson-scarlet petals streaked with white; very effective. Prince Leopold is a neat and pretty form, with symmetrical even flowers of good breadth and crimson-scarlet in colour. The Siren deserves notice amongst the most attractive; the flowers are bright scarlet margined with white, and they are borne six on a scape. The Rev.



Fig. 36.—MONOCHÆTUM SERICEUM MULTIFLORUM.

T. Staniforth has broad rounded handsome flowers, the petals crimson in the centre and margined with white. Mrs. T. Gilbert, a pretty form with neat flowers streaked with crimson and bordered with white; it possesses a very distinct and agreeable fragrance, a quality of considerable value. There are many other varieties of scarcely less beauty than those noted above, but we must reserve a few observations upon them until next issue; in the meanwhile all who have the opportunity should visit the nursery, as the display is unrivalled in brilliance.

MONOCHÆTUM SERICEUM MULTIFLORUM.

IN one of the numerous intermediate houses at Messrs. J. Veitch and Sons' Chelsea Nursery some dozens of the pretty dwarf Mono-

chaetums produced an attractive display during the past December and January, and doubtless many visitors learned for the first time the usefulness and decorative value of such plants. They were all in small pots, 60-size or 48's, the majority in the former compact little bushes 6 inches or more in height; and in the case of the variety now specially referred to, the bright purplish mauve flowers were so abundant that the foliage was scarcely visible. It is true the blooms are of short duration, but they are so freely and continuously produced, that for several weeks the plants may be advantageously employed in a warm greenhouse, conservatory, or a cool stove, especially for the margins of stages. The plants are of easy culture, requiring well-drained pots and a compost of light turfy loam, peat, and sand, the former in about equal proportions. Other useful forms are M. Lemonianum, M. Humboldt-

ianum, and *M. ensiferum*, but no species is so dwarf, compact, and floriferous as the one represented in the accompanying woodcut.

KEEPING APPLES—NOUVEAU POITEAU PEAR.

KEEPING APPLES.—I have only a warm cellar to store my fruit in, and like to attend to the matter myself, but the great gale caused me to hasten the picking, and I could not store away as I intended. A quantity of mixed fruit was sent in from the nursery in our exhibition Rose boxes, and finding it kept remarkably well I have allowed it to remain there in preference to placing it on the shelves, and at this time I have Cox's Orange Pippin, King of Pippins, Scarlet Nonpareil, Stirling Castle, Winter Peach, and other Apples as plump and fresh as when gathered from the tree. Pears did not keep, but went mealy and cracked in a short time, so that they are not improved by the close confinement. In flavour the Apples are brisk and rich, but if laid on straw they probably to some extent will taste of it. Next season I shall store more in boxes, and merely lay them on clean demy paper. Knowing that so many have but indifferent places to keep their Apples, my experience may be of service to them, although possibly not a new idea. The Rose boxes have a little ventilation through perforated zinc, and a little tilt from time to time would be advisable. This plan is also effectual in keeping the mice from the fruit, and these boxes can be stored one on the other and labelled outside, so that any required kind can be found at once.

PEAR NOUVEAU POITEAU.—As you rightly remark in last week's Journal, this is a very buttery Pear, and occasionally of fine flavour, but it is very apt to rot at the core, and is often ripe before it appears so, as it is always of a dull green colour, so much so as to mislead those who do not know its nature. In growth it is robust and upright, and bears profusely. I have had two bushels from a small standard tree, and these large, as the tree was well mulched early in the season. Its chief merit is that it often bears when Pears are a failure, and in some seasons has been almost our only good crop.—GEORGE BUNYARD, *Maidstone*.

NOTES FROM MY GARDEN IN 1881.—No. 2.

MANY questions and statements have been made in the Journal lately on the subject of the *Gladiolus*, and I have purposely abstained from replying to them in order that I might in this paper give the result of my own experience during the past year and enter somewhat fully into the subject.

I have, as your correspondent "W. J. M." says, been a grower of this grand autumn-flowering bulb for a large number of years (twenty-five?); in fact I believe that I may claim to be the "dozen" of amateur growers. I have had varied experience of it in different places, soils, and climates. I have tried its culture in accordance with the most varied advice; and I have come to the conclusion that my friend Mr. Banks of Shobden has—if you want to know how to gain patience and bear disappointment, grow the *Gladiolus*. Your correspondent asks how, after seeing the Manchester Exhibition, I can say that it is in the background. My answer is, I do not want to travel beyond that Exhibition to prove my statement. Prizes of the most liberal character were offered, yet in the large class there were only two exhibitors and three in the smaller one, and of these three exhibitors two were nurserymen. Now does not that prove that, for some cause or other—what that cause is I shall hope to show presently—the *Gladiolus* is not grown as its character for beauty would seem to claim for it? It is the same way in the south. Mr. Kelway and I were the only exhibitors in 1880, and he alone in 1881, for as they fixed their Show on a Monday I could not attend.

My culture is very small—i.e., I do not, exclusive of seedlings, grow more than four hundred corms. Of those that I planted in the spring of 1881 about eighty were fresh corms imported from the continent, sixty were new corms of some of the very best of English-raised flowers, and the remainder were of my own growing, some corms of large size, others which I had raised from spawn, and one small bed of seedlings which had been left in all the winter, so that I had a varied collection; and as it included all the novelties of Mons. Souchet's successors and some of the newest of Mr. Kelway's I anticipated a great deal of interest and enjoyment on their blooming. Interest there was, but, alas! I ought to have known better as to the enjoyment. There was a certain amount of this in witnessing the flowering of some of the newer varieties, but if I weighed against this the miserable disappointment of seeing some grand variety just beginning to develop its bloom and then miserably withering up I fear the balance was on the other side. This is what every *Gladiolus* grower has had to complain of; and although I have frequently stated my own

view of it, yet as some of your correspondents appear to wish for information I shall again give my ideas. I planted my corms in the usual manner. In each bed there were some French, some English, and some of my own saved corms of the French varieties, so that I could easily compare results. Of the sixty English corms twenty never even started, and when taken up the corms were apparently as they had been planted; fourteen came up and then perished; and of the remaining twenty-six some were very small when lifted. Of the eighty French corms four never came up; I lost about eight others; the remainder were sound and good. Of my own saved corms I lost about 10 per cent.; and of the seedlings which were left in the ground more than one-third perished. I have often detailed my method of cultivation. I plant in a good alluvial soil from 4 to 6 inches deep, and top-dress with well-decayed manure when the plants are showing for bloom. That I can grow them I may, I think, appeal to my exhibits to prove; and although sometimes failure is laid to the want of knowledge or carelessness, I may without much flattery say it is not the case with me, I believe. I may say that I carried out rather extensively the plan of cutting the larger corms in two (each with an eye), and that some of the finest blooms I had were from those cut corms, and that in none of these cases did the corms refuse to start. Those which perished were more or less spotted, some as if they had dry rot, but more frequently like the Potato when disease has attacked it. This is the fungus, which I believe to be in both cases the result, not the cause of decay.

To what cause are we, then, to attribute this perishing of the bulbs? I will examine the reasons put forward.

1, *Degeneracy*.—Now we must define what this means before we discuss it. By degeneracy I understand the deterioration, not of an individual, but of the variety. When I say that the Lapstone Potato has degenerated I do not mean that those in my own garden have done so, but that wherever cultivated it is the case. When it is said that the Ribston Pippin has degenerated it means that wherever you may get grafts they have not the vigour that they used. I do not affirm that it is so, as I know it is a moot question. Now if I take this to be what is meant, then I say that the *Gladiolus* has not degenerated, that there is not a single variety of which we cannot obtain as good and sound corms as when it was first sent out; but if it is meant that the same corm will not year after year produce corms as strong as when it first flowered, I am prepared to say that this may be so. All growers know that a new corm is produced on and above the old one, and this may not after a year or two have the vigour of the old one. But then there is a remedy open to all. The *Gladiolus* produces a number of small corms or spawn varying in number according to the individual variety; some producing them, as in Horace Vernet and Delicatissima, in hundreds, and others, as Adolphe Brongniart and Madame Desportes, only very sparingly. If these are taken off and potted they will in a couple of years produce flowers.

2, *Exhaustion* is said to be the cause of the corms dying. It is said you allow them to flower and seed, and then expect that they are to be as vigorous as ever. But what if you do neither the one or other and yet they perish? Where there are so few grown as in my collection, and I have to cut for exhibition, there is not much chance of this exhaustion taking place. But after all what is exhaustion? It is the last loosening of expiring nature. A man may have fever, but it is none the less true that if he dies it is from exhaustion. But I suppose it will be conceded that the fever caused the exhaustion. I am probably only repeating myself in these statements, but as several have asked for information I must needs do so.

3, *Unnatural Treatment of the Corms*.—This would appear to have been good old Donald Beaton's view of the matter. Well, Donald was not infallible. His Spargula has never taken the place of grass for lawns as he prophesied it would do, and few, I think, would be willing now to agree with him as to the Potato disease, and I most certainly do not believe that the failure of the *Gladiolus* is due to their being lifted before they are ripe. Doubtless it would be better to defer it if we could, but in our climate it is impossible, and even in France growers do not wait for that; and as to leaving them in the ground, it is quite a lottery. I have had remarkable instances of vigour in some that were so left, while very many also perished either by excessive wet, frost, or the action of worms. We must remember that the *Gladiolus* is a South African plant which has been highly improved by hybridisation, that in its native habitat it is not subject to frost, and that the rains come at stated seasons, while it enjoys after its flowering a long state of rest. Now this they cannot have with us. If a corm is examined after the stem has died down it will be found that already action has begun on the new corm—it is putting forth fresh roots; while, as the new root is formed above the old one,

it gets nearer the surface, and consequently more exposed to the effects of frost.

4, There remains, then, the only other cause, *disease*; and notwithstanding the statements of our great English grower, this I believe to be the true cause. He ridicules the idea and says, "Do you not suppose that with my large culture I ought to know?" This is much like the answer of a very excellent person who was remonstrated with for bad singing, "Why I know the tune and so must be right." My reply is that this is not a matter to be decided by the amount of acres in cultivation. The facts are the same whether twenty acres or four hundred corms are grown; and in the deduction from those facts the little man may be as good as the big man, aye, and even much better. We know so little of the causes of diseases in plants that to say what causes this may be as impossible as to determine the cause of the Potato or Lily disease; but I think on no other ground can any satisfactory answer be given as to the loss occasioned in them and to the capriciousness in those losses, some corms are alone spared, the rest perished. To argue as some have done that because we do not plant our Hyacinths a second year on account of their having exhausted themselves, and that the same holds good with regard to Ixias and Lilies, is beside the mark. The Hyacinth does not perish, neither do the Ixias, and the Lily does die of disease. Moreover, if we could buy the best varieties of Gladiolus at Stevens's for 4*l.* a piece, as I have seen *Lilium auratum* sold, we should not say much about it, but, as in that case, replenish our losses.

I do not believe that sand or charcoal, or planting deep or planting shallow, or growing in pots first and planting out later, will ward off the malady. Growers must take their chance and do the best they can. This may sound poor comfort, and I am told that I discourage the growth of the flower. Well, surely truth is above all things that which we want to find. Nothing is in the end gained by any other course.—D., *Deal*.

STRAW SHELTERS.

SOME years ago when I had many plants that needed shelter—bedding plants, Celery plants, Cauliflower plants, &c.—and could not procure mats, I made some straw shelters that proved of the greatest service and lasted many years. They were made as follows—Some three-quarter-inch boards were sawn into strips about 2 inches wide. These were cut into the required lengths, about 5 feet, for forming the framework of each shelter. Two of these pieces were laid on their edges exactly parallel with each other and at the requisite distance, and cross pieces were attached for forming each frame. These were "let in," so as when secured they were flush with the edge of the side pieces. One piece was nailed across each end, and three others at equal distances from them. The framework, now complete, was turned over, and the straw, drawn very straight, was laid in carefully

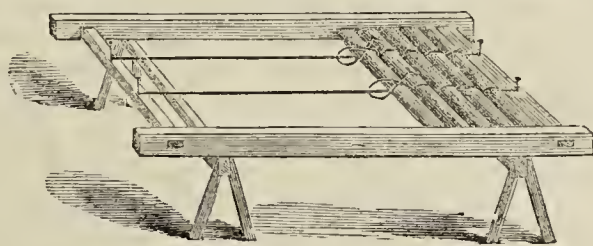


Fig. 37.

and compactly half an inch or more thick. This was secured in its place by lengths of stout flat plasterers' laths cut just to fit within the sides and laid exactly over the cross pieces on which the straw rested. A few flat-headed inch nails were driven through at 6 inches apart, and a light close rigid shelter was formed. The straw is better if not passed through a machine, and it should be Wheat straw.

These shelters, made exactly of the size of frame lights, are valuable for placing over the glass, while for laying across space enclosed by boards on edge, or excavations in the ground, no mats can equal them, and hundreds of plants of various kinds can be protected.

When the frames are being made and straw fixed in them, they must be laid on a very level floor. If the work is well done and the straw trimmed these shelters have a very neat appearance, and their usefulness will be admitted by all who try them.—A DOCTOR'S GARDENER.

[Undoubtedly straw shelters and mats are of great service in gardens at this period of the year, and we cite the following method of making the latter from the February number of

"Vick's Magazine"—"During cold stormy nights, and often on cold windy days, frames will require protection in order to keep up the heat. The readiest means of shelter is found to be the use of straw mats. These mats are easily made, and one can employ his time upon them in very cold or stormy weather, when nothing can be done to advantage outside. In order to make a good article and to work to the best advantage, it is best to employ a frame such as is shown in the engraving (fig. 37). This frame may be made of two pieces of 2 by 4 wood for the sides, of the length required for the mat, and of two transverse pieces morticed into them at the ends. Four feet will be found a very convenient width for the frame. This framework can rest upon a pair of wooden horses about 2 feet in height, in which position the labour can be most easily performed. In the engraving we have shown only two strings, but a mat of 4 feet width should have at least four strings, which will make the spaces between them about 9½ inches in width; closer tying than this even would be preferable. Screws are inserted at the proper distances on the cross-pieces, to which the strings are attached. The straw is placed on the strings so as to have all the butts, or lower ends, come against the sides of the frame, with the tops meeting in the middle, and so thin as to have the mat not more than three-quarters of an inch thickness when finished. The stitches should not be more than three-quarters of an inch in width. The tying string should be wound on a reel, and there should be one of them for each stationary string. The method of tying is shown in the small engraving (fig. 38). Take a little of the straw with the left hand and work the reel with the right, first over the straw and then under the stationary string, bringing it back between the two strings, pulling tightly and pressing the straw so as to have a flat stitch. In this way the work is continued until the mat is finished."]

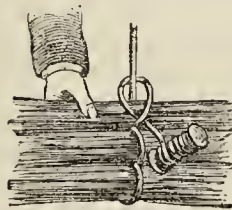


Fig. 38.

the stationary string, bringing it back between the two strings, pulling tightly and pressing the straw so as to have a flat stitch. In this way the work is continued until the mat is finished."]

GALANTHUS NIVALIS VAR. MELVILLEI.

THIS form of *Galanthus nivalis*, as was stated on page 156, originated at Dunrobin Castle, and is quite distinct from all the existing forms of Giant Snowdrops.

It is similar to *G. nivalis* but much larger in all its parts. Leaves the same, but stouter and longer. Flowers creamy white, of good substance, rather over an inch in length; the flower segments oblong ovate, broadest near the centre, each one fully half an inch across the widest portion. The flower retains in a marked degree a fine globular form, and is faithfully represented on page 157.

It was awarded a first-class certificate by the Royal Horticultural Society, March 25th, 1879.

The small-flowering variety has been called by the Rev. H. Harpur-Crewe "*Galanthus scrotinus*, a tiny late-flowering variety, quite a little gem in its way." This variety also originated at Dunrobin, and is one of the dwarfest and tiniest-flowering of the *Galanthus* family.—D. MELVILLE.

THE CULTIVATION OF PRIMULA SINENSIS.

THERE are few small indoor flowering plants so generally useful as the Chinese Primrose. It has been in this country now some fifty years, but it is within this last twelve or fifteen years that the greatest advance has been made in raising improved varieties. The double sorts are very valuable, especially for cutting, as they last much longer than the single varieties. For bouquets they are also most useful. As decorative plants, however, the single varieties are in the greatest demand, and are the most serviceable. The *Primula* is easy to grow, provided it receives fair treatment and its requirements are studied. A light position is all-important. In the winter the plants cannot be too near the glass, and at that season they require a little more heat than an ordinary greenhouse, otherwise, as most growers can testify, they are liable to damp off at the collar.

The usual method is to raise fresh plants every year, destroying the old plants as soon as they have flowered or have ripened seed, except in the case of any that may appear to possess some superior quality. To have them strong for flowering towards the close of the year, the first sowing should be made at the beginning of March. Well-matured plants that have not been pushed on too quickly are not so likely to damp off as those which have been hurried. The seeds of *Primulas* require care in sowing, or they will not germinate. In all stages *Primulas* cannot endure any approach to stagnation in the soil, consequently the pans must be well drained, placing a layer of dry manure over the corks.

The soil should consist of three parts good loam sifted, and two parts sand and decayed leaf soil in equal proportions (the latter sifted). The whole being well mixed together, fill up the pans with this compost to within an inch of the rim, and press it down moderately firm. Sprinkle a little sand and press the surface smooth, next give a gentle watering to settle the soil; then sow the seeds evenly, and scatter some very fine compost half soil and half sand over them to the depth of about the eighth of an inch; again smooth the surface by gentle pressing, then cover with brown paper, which will keep it damp, so as to obviate the necessity for giving water until the plants appear. Care must be taken that the paper does not remain on longer, or it would cause them to become drawn. After they have advanced a little place them in a light situation, shade them with any light material which will protect them from scorching without darkening them too much. Give a little water as they require it, and when large enough prick them out $1\frac{1}{2}$ inch apart in pans of soil similar to that in which the seed was sown.

When they have leaves nearly an inch in length they must be placed singly in 60-size pots, employing the compost before mentioned. After potting the best place for them will be a shelf in a light house or pit in an open situation. Place the plants close to the glass. This is of importance, as if in the bottom of a pit or house and near together their leaves become drawn, and the plants not only have a weak appearance, but also will not produce half the quantity of flowers they will do if strong and vigorous. When the weather is very bright they should be slightly shaded, ventilating freely during the day, and at night when mild. As soon as they have filled their pots with roots they should be transferred to 6 or 7-inch pots, which, for all ordinary purposes, are large enough to grow and flower them in. The soil this time should consist of three parts good loam broken with the hand, one part of leaf soil; add a little bone dust, and as much sand as will keep the whole porous. Pot firmly, and leave sufficient room for watering. The best position for them until September is houses or pits as already advised, up to which time the flowers they from time to time produce should be removed, unless early blooming is required. To keep the atmosphere free from damp employ fire heat occasionally, and if a little warmth is kept on so as to have the night temperature at 45° the flowers will be much larger, and produced through the winter in greater quantities. As the flowers are being produced give liquid manure freely, as it will be of great assistance to them.

The double and semi-double forms of this flower are increased from seeds sown and managed as described in the case of the single varieties, also by cuttings made by a division of the crowns with a portion of stem attached. These strike best in small pots in sandy soil in a moderate heat. They must not be in a very humid atmosphere—only sufficient to keep them from flagging, or they are liable to damp. When they are well rooted transfer them to 4-inch pots, employing soil similar in every way to that advised for the single kinds. Pot them low, so as not to leave any of their stem bare. So treated they will thrive much better than with the common practice of leaving a considerable space between the soil and the bottom leaves. Through the summer let their treatment be the same as that of the single sorts, but in the winter they do far the best when kept in an intermediate temperature of 45° or 50° at night and a little higher in the daytime, with ventilation when the weather is suitable.—(*Read before the Paxton Society, Wakefield, by Mr. Thomas Marsden, Gardener to Francis Hobson, Esq., Sheffield.*)

CALADIUM CULTURE.

CALADIUMS are favourite plants in all gardens, as in spring they may be grown quickly for decoration, and long afterwards they continue highly attractive in both stove and conservatory. Some start them before shaking them out of the old soil, but this plan I do not consider a good one. As they multiply fast we generally select the strongest tubers for our use and give the others away. Very large tubers are potted singly at first and grown on in the same way afterwards. Those of medium size are often placed in the pots in pairs and threes, and it is always decided how many are to be grown together before any are potted, as we do not approve of adding two or more potfuls together subsequently. When large specimens are desired a number of tubers may be potted in an 8-inch pot and be re-potted into a 12-inch one; but for house and room decoration plants in 6-inch and 8-inch pots are most suitable, and for these the tubers are started in 4-inch or 5-inch pots. The pots should be clean, giving good drainage; over this a little moss should be placed, then some of the roughest of the potting material, and upon this place the tubers, potting being finished by adding the finer parts of the soil until the top of the tuber is almost hidden.

A good compost consists of loam and leaf soil in about equal proportions, with plenty of sand added.

After potting no water should be given until growth commences, unless the soil is dry, which is not likely to be the case if the pots are plunged in some moist material such as sawdust, tan, or leaves.

They start very freely into growth when plunged in a bottom heat of 70° or 80° . As many beds are made up for propagating at this time a corner of this can generally be spared to start a few Caladiums. As soon as the leaves are 6 inches or so high the plants may be safely placed on a shelf in the stove. With careful watering they will soon grow rapidly, and as soon as the leaves are fairly robust and the roots plentiful they may be transferred to the large pots. At this potting rough soil and half-decayed manure, with the usual quantity of sand, should be used and placed in firmly.

After the second potting if the plants can have the assistance of a gentle bottom heat for a week or ten days it will be a great advantage, or a warm close corner in stove or pit will suit them almost as well, care being taken that they do not receive any severe check. As the roots run into the fresh soil and the leaves develop they may be brought into a light position, but they should never be exposed to powerful sunshine, as this destroys the colour of the leaves. During the spring months little shading is needed.

When the leaves are of good size and the pots are full of roots liquid manure may be applied two or three times a week, and the plants must be kept near the glass with plenty of space to grow regularly. During the best of the summer months the plants may be placed in the greenhouse or conservatory, and late in autumn they may again be transferred to the stove.

Where only a few plants are grown the whole may be started into growth at once, but when several dozen potfuls can be grown a dozen may be started now, and the same number a month hence. As the names and descriptions of the best Caladiums appear in most nurserymen's catalogues they need not be given here.—M. M.



KITCHEN GARDEN.

It is desired in most gardens to obtain a supply of new Potatoes from the open ground as early as possible, for which purpose a breadth of Veitch's Ashleaf, Myatt's Prolific, or similar early varieties, should be planted, choosing a south border or some other sheltered position; and a single row, planted at the base of a south wall where protection is afforded the trees, will advance the time of lifting by ten days or a fortnight. The general planting of the early varieties of Potatoes should be deferred for another fortnight or three weeks, particularly in the north; but as the sets are sprouting fast they should be spread out thinly, and every possible care taken to preserve the first shoots, especially of the kidney varieties. We prefer kidneys of the Ashleaf type, giving preference to those previously named and Mona's Pride, also for second early the old Lapstone and Covent Garden Perfection are admirable in every respect. In ordinary kitchen gardens space is not generally available for late crops of Potatoes, neither is it desirable to grow these in such places, because the soil is too rich, inducing luxuriant growth, and though the crop be heavy the quality is not equal to that of Potatoes grown in less rich soil and more open situations. Plant whole sets and of good size, as these afford better results than small sets, the sprouts being reduced to one for a medium-sized set, and two, or at most three, for a large one, planting 12 to 15 inches apart in rows 30 inches asunder. The second early kidneys should be given 6 inches more distance between the rows.

Where the soil is not too wet Asparagus beds may be lightly forked over, and the alleys prepared for Cauliflower plants which have been wintered in frames. The plants, having been well exposed, will be hardy, and may be placed out at once, or should the weather prove unfavourable it may be deferred another fortnight or three weeks. When the requisite quantity of Asparagus roots are taken up for forcing, the number of that destroyed should be ascertained and a corresponding quantity planted annually; and although it is

as yet too early the ground should be well trenched and liberally manured so as to have all in readiness for planting, which is best done when the seedling, or at most two-year-old plants, are starting into growth. Where the soil is stiff a liberal addition of material from the rubbish heap, after it has become well reduced, will be highly advantageous; indeed, in soils too clayey for Asparagus artificial beds should be formed of old material from the potting bench, the ground being well drained and beds formed 24 to 30 inches in depth.

Seakale which has been forced and afterwards laid in should be planted out in rows about 18 inches apart, and 12 to 15 inches asunder, and these will form excellent crowns for subjecting to a similar process another season. If there be a deficiency of roots, or it is wished to increase the stock, the roots that have been reserved from those lifted for forcing should be planted, selecting healthy portions 4 to 6 inches long, and inserting them in rows the same distance apart as named above. Crowns that were considered too small for forcing should, after cutting off the growing point, be treated similarly. Seed may also be sown in rows 15 inches apart, covering them about an inch deep, and thinning the seedlings to a foot apart.

Where Rhubarb has been lifted for forcing, proportionate fresh plantations should be made to maintain the supply of roots for the purpose in future seasons, planting divisions of older stools with two or more crowns and a fair portion of root in rows 3 or 4 feet apart according to the variety, which will be a sufficient distance for those to be lifted after a couple of years' growth for forcing; but for permanent stools a foot more distance should be allowed between the rows and plants. For forcing, Johnson's St. Martin's is the best, also for early use outdoors; Victoria being large and good alike for all purposes, except for very early forcing; Stott's Monarch is the largest and excellent in quality. The ground for Rhubarb can hardly be too deeply trenched and liberally manured.

A sowing should be made on a border at the base of a south wall of Cauliflower seed, Early London and Walcheren; Autumn Giant also being sown, as this and Eclipse, an admirable variety, withstand drought better than the first two, and to which they form a desirable succession; also of Brussels Sprouts, Early Vienna and Drumhead Savoy; Heartwell and Ellam's Early Cabbage; and a little Leek seed for raising plants where these are required early. Also on a warm border should be sown Early Horn Carrots, Nantes being the best, and early Munich Turnip, which comes in several days in advance of any other variety. In a similar situation sow Scarlet and White Forcing Turnip Radish seed, and for a long variety Wood's Frame; and to secure a supply of Lettuces for salading after the autumn-sown is exhausted, make a sowing in a warm situation of Paris Market and All-the-Year-Round of Cabbage varieties, Bath Sugarloaf, and Alexandra Cos, the thinnings being transplanted to good rich soil in the open, and afford a succession.

Round Spinach may be sown in a single row between Peas, making a successional sowing of the latter and Broad Beans according to the probable requirements, earthing up and staking as the more forward require it. Onions should be sown as soon as practicable, also Parsnips; and where Beet is required early a small sowing should be made in a sheltered position of the variety Egyptian. Celery for the main crop should now be sown in pans placed in a little heat until the young plants appear, then removing them to a cool house. Major Clarke's Red, Ivery's Nonsuch Pink, Sandringham, and Wright's Giant are good sorts.

Forcing Department.—Any pits or frames at liberty should be utilised by planting Potatoes that have sprouts half an inch to three-quarters of an inch long, and any pits furnished with hot-water pipes may be employed for French Beans, Ne Plus Ultra being very free, and Canadian Wonder the best of all. Sow Chili and other Capsicums, also Tomatoes, to obtain plants for cool houses, keeping the young plants in a light position, and in no more heat than will insure steady progressive growth. Shift those previously sown into larger pots as they require it, potting firmly, and train with one stem. Prick off Celery into boxes or beds in a little heat about 3 inches apart, and admit air freely on all favourable occasions, so as

to keep the plants sturdy. Well ventilate pits or frames containing Potatoes, supplying when necessary tepid water, and earthing up lightly those sufficiently advanced. Attend to the requirements of Radishes, Carrots, and Lettuces in frames, watering early in the day, and thin early. If a sowing be made of Radishes and Carrots in cold frames they will precede those sown outdoors by some weeks.

FRUIT HOUSES.

Vines.—Early Grapes approaching the stoning period will require careful treatment, maintaining a minimum temperature of 65°, ventilating early in the day, but avoid cold draughts—a very common cause of rust, and let the temperature rise to 85° by the aid of sun heat, closing early with plenty of moisture in the atmosphere. To prevent the attacks of red spider damp the borders at closing time with guano water, or preferably mulch them with short horse manure, and a little guano may be sprinkled in the evaporation troughs occasionally. Should red spider appear paint the return hot-water pipes thinly with flowers of sulphur mixed with skimmed milk. Fruiting Vines in pots must have generous treatment, affording liquid manure 5° to 10° warmer than the house in which they are growing; and where the pots are plunged the quality of the fruit will be much improved by allowing the roots to extend from the pots into the beds, allowing the Vines to make plenty of foliage.

Disbud in succession houses, and as soon as the bunches can be seen raise the temperature to 55° to 60° at night, and 60° to 65° in the day artificially, with 10° to 15° rise from sun heat. If any bunches from the imperfect ripening of the wood have a tendency to twist or curl up a rather high and dry temperature at this stage will reduce it. If any Vines are starting irregularly, or at the top only, sling the rods in a horizontal position till all the shoots are a couple of inches long. Vines in flower set best when the air-moisture is not excessive; a very moist or dry atmosphere should be equally avoided, ventilating moderately whenever the weather permits, closing early. Shaking the rods two or three times a day when the Vines are in flower will for most kinds be sufficient to insure a good set, but shy-setting kinds should have the pollen of Hamburgs applied to them with a brush.

Where the Grapes are thinned and approaching the stoning process examine the inside borders, and if at all dry soak well with water or liquid manure at 85°. Muscats, Lady Downe's and other late sorts, may now be encouraged, as late Grapes of all kinds require a long growing season to insure their thorough ripening and sound keeping. A temperature of 50° to 55°, and 10° to 15° rise from sun heat, will be sufficient for the present, the rods and all available surfaces being damped occasionally to produce a genial atmosphere.

Cherry House.—The flowers have now expanded. Artificial impregnation must be attended to on bright days when the house is freely ventilated, but if bees visit the blossom they will fertilise it. Afford if necessary a liberal supply of water in a tepid state to the borders. Open the house at 50°, above which allow a free circulation of air to pass through the house, regulating it according to the weather, artificial heat being only needed to prevent the temperature falling below 50° in the day and 40° at night. Keep a sharp look-out for caterpillars or grubs: one will be found rolled up in the leaves, and the other enclosed in a case attached to the under side of the leaves.

Pines.—For those who have to maintain a supply of ripe Pine Apples through what is known as the London season and through the summer months the present is an important period, as a batch of suckers must now be started; and to insure a speedy root-action unaccompanied by top growth until the plants have made roots to sustain it a brisk bottom heat is indispensable. A bed being in readiness to receive the plants, proceed with potting. Employ 6 or 7-inch pots, draining about an inch deep, and employing fibrous loam rammed firmly round the base of the sucker; plunge into the bed at once, not giving any water until roots are formed, as they will in a bed at a temperature of 90° to 95° in about ten days, when water should be given as necessary. If the weather be very bright shade from the midday sun, and sprinkle them lightly about twice a week, the temperature of the house or pit being kept at 55° to 65°. Any

plants in an unsatisfactory state should be disrooted and subjected to the same treatment as advised for the suckers.

Melons.—The first batch is now growing fast, and will only need to have the shoots secured to the trellis, to be duly supplied with water at the roots, maintaining a moist atmosphere by damping in the morning and at closing time or early in the afternoon. Secure a temperature in the daytime of 70° to 75°, allowing it to fall to 65° on cold nights. Remove every alternate lateral on opposite sides of the main stem, but do not stop the lead until it has extended two-thirds up the trellis. Where there is more than one house the present is a good time to plant a second for succession. For the cultivation of early Melons a low span-roofed house is most suitable, about 10 feet in width, with the roof at an angle of 35°, and having a 3-foot pathway down the centre and a bed on each side. There should be two rows of hot-water pipes through each bed for bottom heat, the pipes in the bed being covered with rough brickbats 6 to 9 inches above the pipes, and over these a layer of turves grass side downwards, and then the soil, a mellow rather heavy loam, being raised in ridges or hillocks with the top flattened, the soil being 10 inches deep. Top heat may be provided by a row of pipes on the curb on each side the walk, and another along the front or side walls. Keep the plants near the glass to insure a sturdy growth, not stopping those to be trained to trellises, but those to be placed in pits or frames should be stopped at the second leaf. Make up hotbeds for pits and frames after the fermenting materials have been thoroughly incorporated and well prepared by repeated turnings. For frames choose a good sheltered situation, and employ a good layer of faggots for the bottom, especially in damp situations. Provide a bed large enough—18 to 20 inches larger than the frame on all sides—making it 4 feet above the faggots, beating it down firmly. Put on the frame and lights, and when the heat is up level the surface and place in each light a hillock of soil, making it firm, and entirely cover the surface of the bed with soil, planting out when it is found the bottom heat will not exceed 85° to 90°.

Cucumbers.—Increased light and sun heat will necessitate increased atmospheric moisture, keeping the evaporation troughs charged with liquid manure, and the foliage damped lightly early on bright afternoons, the night temperature not being allowed to fall below 65°. Afford liquid manure once or twice a week. Do not allow the fruits to hang too long, or they will weaken the plants. Remove all male blossoms, well thinning the fruit on young plants just coming into bearing, stopping frequently one joint beyond the fruit. Sow seed to raise plants for pits and frames, attending to the instructions given concerning Melons.



FUMIGATING BEES.

DOUBTLESS Mr. Raynor is correct in stating that fumigating bees with the smoke of Thyme and other substances is practised in foreign countries, and his quotations put the matter beyond question. For aught I know the practice of using smoke to fumigate bees may have been known at an early date in Great Britain. But James Bonner, bee-master, Auchencrow, Berwickshire, who wrote and published an able work on bees in the year 1789, does not appear to have used smoke or known of it in his day. Bonner's book fell into my hands for the first time a few weeks ago. After Bonner's day my father was perhaps the most extensive bee-keeper in Great Britain for many years. Both he and Bonner practised artificial swarming without using smoke of any kind. How Bonner proceeded I do not know, but my father simply fixed a Cabbage blade in front of his face, turned up his hives and drummed and drove swarms from them in the manner we now do with the use of smoke to prevent stinging.

One autumn when my father was in Edinburgh selling his harvest of honey he met an Irishman, who offered to instruct him how to carry a hive of bees fully exposed up and down the streets without getting a sting, for a gill of whisky. The bargain was struck, and "the secret" thus obtained was worth all the whisky in the city to my father and to hundreds of bee-keepers besides, and doubtless to thousands of apiarians during the last ten years.

The use of smoke from fustian and corduroy rags makes bee-keeping comparatively easy and pleasant work; and though I am courageous enough amongst angry bees with smoking rags in my hand, I would not like to undertake to swarm fifty hives artificially without the use of smoke. Without the least disposition to question the truth of what Mr. Raynor says about the use of smoke being known long before the Irishman's day, the probability is great I should never have known it, and never have been a bee-keeper at all, but for the Irishman and the gill of whisky in Edinburgh.—A. PETTIGREW.

BRITISH BEE-KEEPERS' ASSOCIATION.

RULES FOR ECONOMIC APIARIES COMPETITION, 1882-83.

1, The object of this competition is to show the relative merits of different systems of bee-keeping, and to prove that bee-keeping if conducted on economical principles is highly remunerative to the bee-keeper.

2, Competitors shall be members of county associations affiliated with the British Bee-keepers' Association residing within the recognised boundaries of their respective counties, or members of the British Bee-keepers' Association residing in the county of Middlesex. Each competitor shall be limited to one entry, and shall pay an entry fee of 5s.

3, Prizes of £6, £5, £4, £3, £2, and £1 shall be awarded in the order of merit to the competitors who shall derive the greatest profit from an experimental apiary on not more than two hives at the outset, which may be increased to any extent by natural or artificial swarming. The total capital to be employed in commencing and maintaining the apiary must not exceed £2, and the competition to extend from May 20th, 1882, to August 30th, 1883.

4, The apiary shall be established in the garden of some cottager to be selected by the competitor and approved by the Secretary of the County Association, or in the case of the county of Middlesex by the Secretary of the British Bee-keepers' Association.

5, The competitor shall keep a diary (a duplicate of which shall be kept at the cottage), in which all transactions connected with the apiary shall be recorded, and each item of expenditure and receipt entered; such diary to become the property of the British Bee-keepers' Association at the close of the competition.

6, Each hive shall be weighed, and the weight minus the roof and covering shall be recorded in the diary. The hives shall be stocked with bees without combs; the bees to be valued at 4s. per lb. Comb foundation may be used at any period of the competition at 2s. 6d. per pound for thick, and 3s. per pound for thin. No bees, brood, or natural comb to be imported into the apiary after commencing. Queens may be introduced into the hives at any period of the competition, and shall be valued as follows—in the month of May, 8s. each; in June, 6s. each; in July, 4s. each; and any other month, 3s. each. All expenses incurred after the commencement of the competition must be defrayed from the original capital of £2. Vouchers must be produced for all purchases made throughout the competition, including hives, bees, and any appliances used at the commencement.

7, Each competitor may make his own hives and supers, but vouchers for the cost of the materials must be produced, and the workmanship valued by the Secretary of the County Association or an expert appointed by him.

8, Every amount expended in the apiary for food or any other incidental matter of whatever nature shall be charged against the apiary, and everything legitimately sold shall be set down in its favour. Vouchers must be produced for all swarms and honey sold during the competition according to the printed forms supplied to each competitor for this purpose.

9, The Secretary of the County Association may visit the competing apiary at any reasonable time, or may appoint an expert to do so. The record of such visits, together with any remarks which it may be advisable to make, to be entered in the diary, which shall always be accessible for the purpose.

10, The competitor shall certify that during its continuance he has fulfilled all the conditions imposed by these rules, and that all his entries in the diary are true. The Secretary or his expert shall certify as to the quantity and value of the honey produced by each competitor.

11, Any attempt at fraud will be punished by disqualification.

12, All entries must be made on the proper printed forms and accompanied with the entry fees on or before May 1st, 1882. Application for entry forms to be made to the Assistant-Secretary, Mr. J. Huckle, King's Langley, Watford, Herts.—HERBERT R. PEEL, Hon. Sec., Thornton Hall, Stoney Stratford, Bucks.

TRADE CATALOGUES RECEIVED.

Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester.—*Catalogue of Select Farm Seeds.*

Franz Anton, Haage, Erfurt.—*Catalogue of Vegetable and Flower Seeds.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Farm Seeds (Illustrated).*



**** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.**

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (E. B. Charlesworth).—Write to Mr. T. S. Ware, Halo Farm Nurseries, Tottenham, Middlesex.

Heating (C. P. L.).—Please send us your name and address, which we have mislaid, as we wish to communicate with you.

Colognye cristata (Constant Subscriber).—The two flowers sent differ slightly in the colour and size of the crest, but not so much as to deserve distinctive names. The two best marked forms of this species are C. cristata Lemoniana with a pale yellow crest, and C. cristata alba, in which the lip is quite white. The leaves appear to have been attacked by thrips, and should be carefully sponged with soft soap and water.

Mice in a Mushroom House (C. B.).—If you cannot trap the mice we can only suggest that you poison them. But to induce them to eat the poison you would find it advantageous to first spread some dainty bits of food for a few nights, and when you found they ate it readily, then add the poison, which you can obtain from chemists. If you cannot procure a "Gardener's Year Book" from Messrs. Smith & Sons' bookstalls, we are unable to suggest how you can obtain a copy. It cannot be had from this office.

Adiantum Farleyense (E. D. C.).—It is not unusual for the old fronds of this beautiful Fern to wither at this season of the year; indeed, a number of them usually decay when fresh fronds are being produced. Remove the withered portions and repot the plant if it needs repotting, otherwise top-dress by removing as much soil as you can with a pointed stick and adding fresh compost, equal parts of turfy loam and peat with broken charcoal being suitable. Maintain a moist genial atmosphere, and shade the plant by placing a piece of newspaper above it during sunny days. By pursuing this system of management, and applying water with great care, your plant will soon be as attractive as ever. See that the drainage is efficient, as if the soil is sour the plant cannot thrive.

Pruning Banksian Rose (Subscriber).—This Rose does not flower freely in a clay soil unless the plant has a very warm position. The flowers are produced on small hard twiggy growths that should not be shortened. Close pruning is unsuitable, neither will the strong growths to which you allude produce flowers at all freely, although a few may be borne towards the end of the shoots. Such gross growths ought to be removed towards the end of summer so as to admit the sun and air to the smaller shoots, and these, if matured and not shortened, will produce flowers. Without knowing the condition of your plant we are unable to say what course you should pursue now; but as we have stated the conditions essential for success you will be able to so prune and train the plant as to induce it to flower if the position and district are favourable for this Rose. What you must seek to obtain is a number of rather weak growths, and these must be matured by full exposure to the sun.

Pruning Jasmine (Idem).—A well-managed white Jasmine should be pruned somewhat after the manner of a Vine, yet not quite so closely, but neglected plants must not be subjected to such severe pruning. If your plant has been pruned regularly and has flowered freely prune it as we have indicated; if it has been neglected you must proceed cautiously and thoughtfully.

Greenhouse Plants (H. S. P.).—The best advice we can give you is to send ten postage stamps to the publisher and ask him to send you our Greenhouse Manual. If you, in addition, read the articles in the Journal and also the "Work for the Week" columns, you will, we think, have no difficulty in furnishing the greenhouse. If you desire specific information on any plant or matter we will readily supply it if you will state your requirements clearly. General questions of such wide scope as those in your letter cannot be satisfactorily answered in a short paragraph.

Various (C. E. C.).—The young healthy roots of your Pelargoniums must not be removed when the plants are repotted, and only so much of the drainage must be taken away that can be done without injuring the roots. Moss is placed on the crocks to prevent the soil particles choking the drainage. Pieces of turf from which the soil has been shaken are probably better than moss; partially decayed leaves will answer the same purpose, and thin flakes of partially dried manure. Lime water, if it does not kill the grubs, will probably cause them to come to the surface. Soil containing grubs which cannot be picked out should be scorched over a fire in an old iron tray of any kind, and then made moderately moist before it is used; this partial burning adds greatly to the soil's fertility. You will find it difficult to destroy the large grubs in your Pansy bed, and the best plan we can suggest is to remove the plants to another plot of ground, dressing the original bed heavily with fresh lime. Both the Violets you name are distinct from and superior to The Czar. Your poultry question shall be attended to next week.

Mushroom Beds (A Subscriber).—Manure from stables where the horses are largely fed on Carrots is not suitable for Mushroom beds, and especially if most or all of the straw is excluded. As a rule, much of the short straw should be incorporated in the beds after it has decayed sufficiently for the purpose. We have several notes on Mushroom culture in hand, which we shall shortly publish. The subject of growing Mushrooms in beds in the open air will also be fully described. The plant with ornamental foliage is Gymnastachyum Verschaffeltii, the other Vinca rosea.

Vine Eyes Failing (F. C.).—It is impossible for us to say in what respect the eyes were defective, nor can we say whether they will yet produce growth; some of them may, but we should not consider they would be equal to the others. We think you have no cause for complaint, but rather for satisfaction, as you have certainly achieved a very fair measure of success so far, and we trust you will be equally successful in the after-growth of the Vines.

Wood and Fruit Buds (Idem).—To your inquiry, "Can what was only a wood bud in the autumn be transformed into a fruit bud during the winter and in spring?" we answer that in many cases such transformations are effected; but we know many persons are under the impression that fruit buds can only be formed in the summer. They are formed chiefly in summer, and sometimes only partially formed then, the transformation being completed in the winter, and to a great extent this may be effected at the will and by the act of the cultivator. We do not think that by digging up and root-pruning a tree now that the character of the buds could be altered this spring; but if a tree is lifted and much root-pruned in the autumn it will produce blossom buds in the spring, whereas if it had been left undisturbed it would have formed few, if any, blossom buds during the winter. This is a very interesting question, and we do not remember that it has been submitted to us before, though the subject was alluded to in our columns some years ago. Your own Plum trees afford evidence of the transformation in question.

Root-pruning (F. J.).—If your Plum tree has grown as large, or nearly so, as you desire, and the growth is luxuriant, no blossom buds forming, by all means dig round it and sever some of the strong roots, especially those that appear to go straight down into the subsoil. The roots that are severed should be cut off smoothly and the soil made firm around them. The growth would then be less luxuriant this summer and blossom buds would form; if not, you might carefully dig the tree up in the autumn just as the leaves were changing, and replant it, bringing the roots near the surface and placing them in fresh loam and calcareous matter pressed moderately firm. The tree would then, in all probability, become covered with blossom. If there are no blossom buds on the tree now, you cannot by any mode of treatment induce them to form this spring.

Silkworms (Herbert).—The eggs of the common silkworm (Bombyx Mori), can be obtained at several of the shops in the central avenue, Covent Garden, by the ounce, or in small quantities by the hundred. After April the worms may be had at 1d. or 2d. the dozen, according to size. Various new silkworms, in different stages, are supplied by the dealers in foreign insects, but we do not remember having seen their addresses advertised.

Orchard House (A Swedish Subscriber).—The proportions of your house are suitable, but if you intend growing the trees in pots or planted out, so as to form bushes or pyramids, we should prefer the house a foot higher; still you may have small trees of Peaches or Pears in pots along the front. You cannot grow these fruits under Vines, but if the Vines are 8 feet apart sufficient light will be admitted between them for the trees. You would, however, probably have the most satisfactory results by having the Vines in one compartment, training them not less than 3½ feet apart up the roof, and 18 inches from the glass, and the trees in another. You would, we think, obtain the greatest quantity of fruit and of the best quality by training the trees on trellises, and also on the back wall; but, perhaps, you desire to have them in pots, and you are familiar with the attention such trees require in pinching, pruning, and watering, and we also presume you are acquainted with the leading varieties. If you need further information and will state your requirements and the object you have in view we shall be glad to attend to your letter. Some people have pleasure in growing a great number of small trees and varieties, being satisfied with a few fruits on each tree; but the chief aim of others is to produce the greatest bulk of good fruit irrespective of the form of the trees. Less labour and skilled attention are requisite when the trees are planted out and trained on trellises and walls than when grown in pots, but with proper treatment fine fruit is obtained by both methods.

Kidney Beans in Pots (H. H.).—In order to be able to gather Beans about the middle of April no time should be lost in sowing seed. You will find Osborn's Forcing a most desirable variety, as in addition to being quick-growing and prolific it is unsurpassed in quality. If a longer-podded variety is preferred Canadian Wonder is suitable, and Carter's Longsword, a new variety, is highly recommended. Either 9-inch or 10-inch pots may be employed, roughly draining these and filling them firmly to within 2 inches of the rims with good soil, composed, if possible, of turfy loam two parts to one of decomposed manure; on this distribute about nine seeds, cover with about an inch of finer soil, water with warm water, and place in your heated pit. When the plants are well advanced thin out where necessary to about six plants, and support these with a circle of birch branches, such as can be had from a half-worn birch broom. Not much water will be required in the earlier stages of growth, though Beans should never be dry at the roots. By the time they are in bloom they will require much water, with liquid manure frequently, and always of the same temperature as the pit. If much crowded, in pits especially, the Beans are liable to damp off, and overcrowding, even if damping-off is prevented, invariably results in a light crop. From twelve to eighteen pots will yield several good dishes, and in most cases two or three small batches sown at fortnightly intervals are preferable to one or two larger sowings. A temperature ranging from 55° to 60° by night to 65° to 70° by day will suit them admirably.

Ants Injurious or not (Idem).—We have seen ants do much injury by depriving Peach blooms of their pistils, and have also seen many Maréchal Niel Rose buds spoiled by them, but their presence on plants in pots is usually a proof that these are infested with insects. Ants have a marked partiality for sweet food, and the excrement of such insect pests as mealy bug, scale, and aphides being sweet will account for their activity. We do not think they help to spread the above pests. We do not, however, like their proceedings, and to exterminate them find it a good plan to put patches of treacle on slates near their haunts, and whenever many ants are found congregated about it they are brushed off into a can of hot water.

Yellow Roses (C.).—The Rose to which you refer is probably the double form of the Austrian Briar, which is referred to as follows in Rivers' "Rose Amateur's Guide," as also is the Persian Yellow Rose—"The Double Yellow, or Williams' Double Yellow Sweet Briar, is a pretty double Rose raised from the single yellow Austrian by Mr. Williams of Pitmastow, many years since; this blooms more freely than the original species, and is a most desirable variety. Rosa Harrisonii is also a double yellow Rose, said to have been raised from seed in America, and sent from thence to this country. This has proved a pretty yellow Rose. Its flowers before expansion are globular, but a hot sun makes them expand and lose much of their beauty. It is a more robust grower than the Double Yellow Sweet Briar; its flowers are also a little larger, and do not fade so soon. The Single Yellow is the most brilliant yellow Rose we yet possess. A yellow Rose has been given to us from that land of flowers, Persia.

This was introduced by Sir H. Willock to the gardens of the Horticultural Society of London in 1838, and is now called the Persian Yellow Rose. In habit it is so exactly like the Single Yellow Austrian Briar as not to be distinguished from it. It grows readily budded on the Dog Rose, and plants have often made shoots 3 feet or more in length. In colour it is of a deep golden yellow. Its flowers are quite double, cupped, and not liable to become reflexed. It is indeed a most superb yellow Rose. Like the Yellow Austrian Briar it loves a pure air and rich soil, and will bloom as freely; but in pruning, merely the tips of its shoots must be cut off, thinning out the shoots that have been formed in summer, as recommended for Hybrid China Roses. By shortening the strong shoots in summer so as to make them put forth laterals, there will not be any occasion for winter pruning; thus, by judiciously pinching off with the finger and thumb in June all shoots that are larger than a straw to about half their length, small lateral twigs will break out, and the plant will be filled with blooming shoots, some of which must be removed in winter if full-sized flowers are required. To bloom them in perfection all the Austrian Briars require a moist soil and dry pure air. But little manure is necessary, as they grow freely in any tolerably good and moist soil; neither do they require severe pruning, but merely the strong shoots shortened, and most of the twigs left on the plant, as they generally produce flowers in great abundance. Planted as low standards in an orchard house they bloom here in April in great profusion."

Heating with Sanitary Pipes (J. L.).—In our issue of February 12th, 1880, Mr. Jowsey of Sedbury Park described the system that he adopts, and by which he has with otherwise good culture grown Grapes of the first quality, and secured prizes for them at some of the leading provincial exhibitions. We quote as follows from the article in question. "The vineries are spau-roofed, running north and south, the shed walls forming the north end. They are 26 feet long, 22 feet wide, and 13 feet high. The furnace is in the back shed, and the fire is carried on one side of the house in a brick flue 18 inches deep and 12 inches wide, inside measure; then two rows of sanitary pipes 8 inches in diameter are inserted in the flue and carried across the south end. In the opposite corner I built a hole about 18 inches square and 2 feet deep; into one side I inserted the pipes crossing the end into the other, the pipes running up the other side (this arrangement is for cleaning out the pipes expeditiously), which enter the chimney in the shed wall. The pipes are laid one row upon the other, and the heat is equally dispersed through them; the pipes farthest from the fire are warm as soon as the bricks on the side where the fire enters. The pipes are connected with cement. We always keep a small galvanised wire laid through the pipes, and when they require cleaning the corner covers are removed and a bunch of Holly tied to the wire and drawn through, the wire is then drawn back to its place with a piece of string. The fuel used is principally cinders from the Hall. One house was completed in 1870, the other in 1871. The Grapes are ripened in one house in July, the other in September. There are now three cracked pipes which require removing, that is all the repairs that have been needed." On page 138 of the same volume (February 19th, 1880), Mr. Matthews of Weston-super-Mare states "that unglazed sanitary pipes made of fireclay are better than glazed pipes for forming flues, as they produce a better heat and are not so liable to crack as are glazed pipes."

Names of Plants (A. B. C.).—*Andromeda floribunda*.

COVENT GARDEN MARKET.—MARCH 1.

BUSINESS quiet, but prices well maintained for best goods, Kent Cobs selling more freely.

FRUIT.							
	s.	d.	s. d.		s.	d.	s. d.
Apples.....	1	sieve	2 0 to 6 0	Lemons.....	1	case	12 0 to 16 0
Apricots.....	doz.	0 0 0 0		Melons.....	each	0 0 0 0	
Cherries.....	1	lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0	
Chestnuts.....	bushel	16 0 0 0		Oranges.....	1	100	4 0 0 0
Currants, Black..	1	sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0	
" Red.....	1	sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6	
Figs.....	dozen	0 0 0 0		Pears, dessert..	dozen	0 0 0 0	
Filberts.....	1	lb.	0 0 0 0	Pine Apples....	1	lb.	1 6 2 0
Cobs.....	1	100 lb.	55 0 65 0	Strawberries...	per oz.	1 6 0 0	
Gooseberries...	1	sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0	
Grapes.....	1	lb.	3 0 10 0				
VEGETABLES.							
	s.	d.	s. d.		s.	d.	s. d.
Artichokes.....	dozen	2 0 to 4 0		Mushrooms.....	punnet	1 0 to 1 6	
Asparagus.....	bundle	2 0 10 0		Mustard & Cress..	punnet	0 2 0 3	
Beans, Kidney....	1	100	2 0 2 6	Onions.....	bushel	3 6 0 0	
Beet, Red.....	dozen	1 0 2 0		Pickling.....	quart	0 0 0 5	
Broccoli.....	bundle	0 9 1 6		Parsley.....	doz. bunches	3 0 4 0	
Brussels Sprouts..	1	sieve	1 3 1 6	Parsnips.....	dozen	1 0 2 0	
Cabbage.....	dozen	0 6 1 0		Potatoes.....	bushel	2 6 3 6	
Carrots.....	bunch	0 4 0 6		Kidney.....	bushel	3 0 3 0	
Capsicums.....	1	100 lb.	1 6 2 0	Radishes.....	doz. bunches	1 0 0 6	
Canliflowers.....	dozen	1 0 3 6		Rhubarb.....	bundle	0 4 0 6	
Celery.....	bundle	1 6 2 0		Salsafy.....	bundle	1 0 0 0	
Coleworts.....	doz. bunches	2 0 4 0		Scorzonera.....	bundle	1 6 0 0	
Cucumbers.....	each	1 0 2 0		Seakale.....	basket	1 0 1 6	
Endive.....	dozen	1 0 2 0		Shallots.....	1	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0		Spinach.....	bushel	3 0 0 0	
Garlic.....	1	lb.	0 6 0 0	Tomatoes.....	1	lb.	1 0 2 0
Herbs.....	bunch	0 2 0 0		Turnips.....	bunch	0 4 0 0	
Leeks.....	bunch	0 3 0 4		Vegetable Marrows	each	0 0 0 0	



POULTRY AND PIGEON CHRONICLE.

ECONOMY OF THE FARMYARD.

ALTHOUGH we have in our own practice given up use of a farmyard, except as a store or depository for manure made in cattle boxes and pig pens and the cart horse stables, yet we find

the old plan of open yards and the feeding of cattle loose still prevails in all the counties and districts of the kingdom. It is difficult to have alterations made upon certain estates however desirable it may be considered by the home farmer, and it is therefore seldom that he is responsible for not introducing the latest improvements connected with the homestead under his superintendence. Farmers who are the occupying tenants on certain properties are obliged to manage as best they can where any alterations or improvements are not provided by the owners, and various causes stand in the way of new or improved home-steading. We find, in whatever direction we may travel, that a great portion of old-fashioned farm premises are still in existence with open yards for feeding cattle in, without any advantage at all as regards protection or covering. It is this circumstance which influences us at the present time in taking up the subject of economy of the farmyard, and in doing this we wish to show not only the great benefit to be derived from farmyards being covered for the sake of cattle, but also for the manure made therein.

Anyone looking at this matter as we have stated it would think that in such famous agricultural districts as are to be found in the celebrated county of Norfolk they would not feed valuable cattle eating large quantities of oilcake as well as roots, and hay or straw, except in boxes or stalls. It is, however, notorious that the largest portion of the bullocks are there fed in open yards with sheds called "hammels," holding ten or twenty each. The Norfolk farmers, otherwise some of the best farmers in the kingdom, say that the system suits their style of husbandry, which, being the four-course rotation, furnishes them with large quantities of straw for litter, and especially on those farms where they are not allowed to sell straw. Looking at the subject in any other light we certainly should have supposed that they were making a "virtue of necessity," and believing that it would be better if the yards were covered, but that the landlords objected to the expense of erecting protective roofs. This leads us to the consideration of the subject we are discussing—the economy of the farmyard in all its various aspects.

Nearly thirty years ago the late Mr. Fisher Hobbs, who was a great authority in farming matters, and who in his day was one of the first, as far as we can recollect, to erect covered yards for his cattle. Lord Kinnaird also advocated it at about the same period, and his experiments of the value of manure made in the covered yards as compared with that made in the open are very practical as well as valuable, and which we propose to explain further on. Since these two agriculturists made the matter one of public notoriety many covered yards have been arranged in various parts of the kingdom, and under varying conditions and circumstances. It must be remembered that on some estates the yards where now open are generally so formed or set out as to be situated between existing buildings of different kinds, and that in many cases the chief point is to furnish the best plan and materials for covering the otherwise well-adapted yard. We have so many projects advocated for the purpose that we scarcely know which to consider first or to recommend in preference to the home farmer, numbers of whom would doubtless be glad to obtain the benefits to be derived from a well-devised covered yard. As the cost is one of the most important points connected with the covering of farmyards of the old-fashioned description, and according to the plans and evidence produced by those farmers who have examined the matter, the calculations are very wide indeed, but we find the latest estimated cost is much the lowest where it has been recently done.

Our principal object is in calling the attention to the mode of proceeding in covering an open farmyard, without speaking of any other erection adjoining, as that is a matter which, whether it may refer to cattle, sheds, stables, or pig pens, has been fully described in these columns under the heading of "Shed Accommodation for Cattle," on the 16th, 23rd, and 30th of September, 1880. We shall in consequence now treat the matter in relation only to the covering and the advantages to be obtained from it. We will, therefore, assume that yards of various dimensions are still found open, and in existence, surrounded or partially so by buildings of various descriptions, amongst others the barn or barns with the old-fashioned threshing floor, which, if it has not been, may be appropriated by internal fittings for box-feeding of cattle and other similar purposes; we, therefore, shall simplify the plan of construction by this assumption. We will first quote from a paper read to the Midland Farmers' Club by a Mr. Howman, a man of great experience, who observes truly enough that "It is not at all necessary to pull down all the present buildings and to rebuild on new lines, as has been done in his case; but yards as they exist at present might be covered over, and so arranged that they could be worked in with the buildings with

little or no alteration. This could be planned and carried out by the estate carpenter or builder, and the cost would not be so great as to frighten landlords who would have to find the capital, or the tenant who would have to pay the interest." In fact, the tenant could afford to offer such a per-centage to the landlord as would be an inducement to him to invest in such an improvement. "As the position of buildings will be so various we will take for instance the form of existing yards to be as follows:—The barn and main buildings to occupy one side of a square, from which at right angles should run the sheds with the open yard between them; then to cover over the yards and build up one end would be all that is necessary, and this would cost about 20s. the square yard of ground to be covered. Assume also the size of the yard to be 300 square yards and the depth one yard, that would mean 300 cubic yards of manure. This at 2s. a cubic yard, the estimated increased value by covering the manure would give £30, or 10 per cent. for covering the yards. The estimate for roofing only would vary of course according to circumstances. The corrugated iron roofs seem to offer certain advantages for the purpose, and can be erected at a cheaper rate than ordinary slate or tile roofs; they could be erected at about 15s. a square yard of ground to be covered, and the difficulty of the temperature being too hot in summer and too cold in the winter could be overcome with a little trouble and a very slight expense."

After this quotation we must refer to another called a cheap roof, as quoted from an illustrated plan in the *Agricultural Gazette* Almanack, 1882. "In a letter from Mr. W. P. Price of Gloucester on 'Our Cowyards,' referring to a very useful form of construction by which to cover wide spans cheaply and safely without intermediate support, and exceedingly strong in comparison to its weight, and when covered by thin boarding and corrugated iron sheets, or by the iron alone, makes a very durable, cheap, and waterproof covering for large cowyards, corn or hay ricks, and other requirements of the farm where intermediate supports or columns are not desirable. The starting point at which this description of roof becomes of practical utility is where the usual lean-to or light structure of the ordinary type must give place to a more solid and expensive timber or iron framing, as in spans exceeding 20 feet.

"The bowstring wooden girder roof has now been constructed for some years, and in all cases with great economy and success, covering in spaces varying from 30 to 130 feet, without any support beyond the walls, each girder forming a solid web of timber equal in depth to one-fifth of the span, the timbers forming the bowstring (where practicable in one piece of pitch pine) and latticework being not more than 1½ inch to 2½ inches in thickness and a few inches in depth, in accordance with a proportional scale. The accompanying drawing represents one girder as built by the Gloucester Waggon Company at Tibberton, Gloucestershire, for Mr. W. P. Price. The girders are in this instance placed 7 feet apart and secured by purlins and ties, and resting on stone wall plates; the span in clear of walls is 46 feet 2 inches, is covered with galvanised corrugated iron, No. 22 B.W.G., without any boarding, the iron sheets being securely fastened to the timbers by galvanised screws and bolts. This building has been erected at a cost, exclusive of brickwork, drainage, &c., of 8s. 6d. per square yard of space covered." We know of no plan equal to this in all respects; in fact it fulfils all our objects and intentions of farmyard economy as regards the covering of spaces now open, and from which on various estates the cattle suffer so much in condition and health, and from which so much value in manure is lost.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The horses have been employed during the last month or five weeks, and have met with but little interruption in their work on the land from adverse weather. The horse labour of the farm is in an unusually forward state, and as the subsoil is dry and of a high temperature, if we keep free from flooding rains the field grasses and Clovers and Saintfoin will be very forward. Some fields of young Wheat have also been harrowed and rolled, and the land has worked well, but it is very seldom that this work can be done so early. All fallows should now be cultivated by the steam tackle, the horses following with the Howard's self-lifting drag harrows, rollers, &c. This is the best implement of Howard's we have ever seen used for horse labour, especially for the purpose of completing the work by combing out couch and weeds, and leaving them on the surface to be treated by manual labour. It is useless to try to turn the couch so early in the season, and because while waiting for weather dry enough for burning, the work may be done by fork and rake and the couch carted away, leaving, in fact, nothing more to be done but ploughing again, pressing, and drilling. We highly approve of the press drilling, because the manure may be sown over the land broadcast and harrowed in with the seed; besides, if the land should become very dry the seed will germinate better than when put in

with the ordinary drill. When it falls into the grooves made by the presser there is always moisture enough in the subsoil if the tilled surface is dry; besides which, the manures, if portable or artificial kinds have been used, act upon the young plant immediately, whether of cereals or pulse.

We have frequently heard farmers say our horse power will get through the work very well all in good time if the weather proves fine. But it should be remembered that we cannot calculate upon the weather, nor yet control it; we, therefore, consider it a great risk of time and season not to use the power of steam when the weather is suitable, supplemented also by horse labour. Some farmers have observed that they could not afford to employ steam and horse power likewise. Then, we say, the power for cultivating is not equal to the requirements, and that is not farming on commercial principles, nor can it be beneficial in agriculture to leave for tomorrow the work which can be done to-day. The observations as to cultivating apply with equal force whether we are preparing the land or sowing Barley, Oats, Beans, Peas, Potatoes, or Mangolds, because all these crops suffer more or less when the seed time is delayed beyond the first opportunity.

Hand Labour.—Men, and women too, should now be constantly employed; but in those districts where, in the present state of the labour market it is difficult to obtain women for farm work, we say they should not be expected to work only occasionally, but should be engaged daily for work on the farm. Much of the light work of the farm cannot be done with profit by the men only, for we have always employed a gang of women with great advantage, especially in planting Cabbages, setting Potatoes, hand-weeding, raking couch, preparing roots for cutting—in fact upon work of various kinds, and especially in haytime and harvest. The time has now arrived for sowing, or, rather, the hand-drilling of small seeds such as Cabbage of sorts, Kohl Rabi, Thousand-headed Kale, and Cauliflower. The latter proved finer last autumn than we had either grown or seen them grown previously. Good heads were sold weighing from 6 lbs. to 10 lbs. each, and we are informed that one head weighed over 19 lbs., and was sold for 11d., grown, we were informed, from seed of Giant Cauliflowers obtained from Messrs. Veitch.

Live Stock.—The lambing of the Down ewes is now nearly over, but the long-woolled and cross-bred ewes are just commencing the lambing season. There has been a fine and numerous fall of lambs in the southern, western, and home counties. We have received reports of abortion in a few cases; especially we may note a case where Hampshires and Dorsets having lived and fared alike during the whole of the autumn months. A large portion of the Hampshires brought their lambs prematurely, but the Dorsets did not suffer in the same way; this we cannot consider as applicable to their breed, but no doubt produced by some hidden cause. This raises a very important question, for we have noticed lately that during a discussion at a Farmers' Club, consisting of many large flockmasters, the idea was started, and supported too, by practical men, that Turnips grown from phosphates as manure would produce abortion. As the result, however, of our own experience we cannot accept this conclusion. Dairy farming is now becoming very extensive, but we would ask the home farmer to consider whether it will pay so well to make butter in the winter months beyond the requirements of the establishment which he has to supply. There is much expense and a liberal use of valuable food, and much labour to supply the animals with the food required to produce the best butter in the winter months. It should, however, be remembered that in the case of cows calving in the months of April and May, that these would yield not only butter and milk of the best quality, but the cost of preparing food would be nominal, for they obtain their living chiefly, if the pasture is good, by grazing only, which is comparatively but little expense; but, at the same time, it is during this period when the animals are in full milch.

POULTRY AND PIGEONS

BANTAM CHICKENS.

WE have written of Bantams as a suitable fancy for many of our readers; of their attractions and present variety. We have written, too, of the much greater variety in them which we think would reward a few years of judicious breeding and careful selection. It is high time to say something about rearing them. There are many poultry books with many good directions for bringing up chickens; in the columns of this Journal, too, we have not been behindhand in following the course of the poultry year and prescribing for chickens of all ages and sizes. It so happens, however, that as a rule we all want to get chickens as large as possible in a given time, be it for exhibition or for table, and so most of the directions for them tend as far as possible to produce giants of their kind. But Bantams should be pigmies, and so many a would-be Bantam breeder is disappointed at the inordinate size which his régime produces. Possibly he has bought a tiny prize pair at some exhibition, and is horrified to see their produce at ten weeks old towering over the mothers which they

still follow. These so-called Bantams often remind us of the "miniature" plants sold at bazaars and the emporia of watering places. In childhood we bought some which proved to be merely cuttings of large Cacti; they grew, and in time had to be ejected from a greenhouse for their size. In like manner some Bantam chicks grow till they might do duty for Game fowls or Black Hamburgs, but then the system of feeding is sure to be at fault. We may refer by the way to an observation which we have before made about Bantams, that the really old long-established varieties, as Nankins, Pekins, and Black and White Rose-combed, at least before the two latter kinds were by fancy required to have Hamburg rather than Bantam style, do not show this tendency to inordinate size, as do Sebrights and Game and other more modern productions.

Diminutive size is the first beauty of Bantams, and so to that the breeder must turn his chief attention. It must not be forgotten that in-breeding helps towards the desired end. Here, however, we are not so much concerned with mating the parent birds, which should have been done long ago, as with rearing chickens when once hatched. Naturally our first idea is that size must be kept down by stinting food in the days of early chickenhood. Experience has taught us that this does not at all answer. The chickens of all the Bantam races are for their first three or four days very hardy little creatures, then comes a stage in which their feathers develop with wonderful rapidity; there is a severe drain on the system, and unless they are constantly pecking they will, just like little Guinea chicks, faint and die. Their food, however, while nourishing need not be productive of size and quick growth. When we should be giving oatmeal and Spratt's food to Dorkings and Cochins, Bantams should only have dry bread crumbs. They are peculiarly liable to diarrhoea in their early days, and so bread and milk and soft food must be avoided, but plenty of hard-boiled egg given.

Later on, when with the larger breeds it is our great object to keep chickens growing and chicken-like and to prevent their developing into cocks and hens, with Bantams it is just the reverse. Of course bone-meal must be eschewed, but they may have a little of the stimulating spices and minced meat, which we abhor in the case of half-grown large fowls.

Another point which is absolutely essential is to keep Bantam chickens from all damp and exposure to weather. We have great faith in hardening chickens of the robust races by letting them run out beyond their sheds in almost all weather. Here and there, we think, a naturally weakly bird dies, but the strong become stronger, and they are the birds to perpetuate a race. Bantam chicks will not stand any such treatment; they require a coop with boarded floor daily cleaned and covered with fresh sand or sifted earth. Coops with tray bottoms are best. Last year we lost nearly all our few Bantam chickens from their being put too soon out on the open ground; a heavy summer rain carried them off when a month or six weeks old. Artificial mothers are just the thing for Bantams; in them they can always get comfort, which many a restless hen ceases to give when they still require it. For this reason we hardly ever rear Bantams under their own mothers, but under Silkies. Bantam hens have not warmth enough for a good brood a month old, and are generally fidgety; large hens crush them, but Silkies prove admirable foster-parents.

Lastly as to the time of year for hatching Bantams. Writers, copying each other and some old authority, generally advise that they should be hatched in late summer and autumn. We doubt if those who have real practical experience in the matter give that advice. The old country proverb that "Blackberry chickens never thrive," is, like most old country proverbs, very true. We have found it peculiarly true in the case of Bantams. They hatch soon, well, and strong; but within a week, to our great disappointment, in spite of bright weather, some mysterious craving comes over them—they refuse their food, pick eagerly at dry leaves and dry earth, pine and die. Or even if this stage be safely passed, all through the autumn and winter they cough and sneeze and taint the ground and coops for early broods, and probably the best succumb, and only the larger and coarser birds survive. It is true that through a very dry winter on a very dry soil we have formerly reared Bantams which turned out very small and very beautiful, but such cases are quite the exception. As a rule we like to hatch them in March and April. In the cocks of most varieties handsome development of tail is required, and this is never to be seen in such perfection as in early-hatched birds. As we have said, a little stimulant should be given to them when half grown, and both sexes may run together. Precocity is a desideratum instead of a bane. Our constant difficulty with early-hatched pullets of the large breeds is that they will cease to grow in summer and begin to lay. The sooner Bantams do so the

better. We rejoice to see the lengthening sickles of still tiny cockerels, and the reddening combs of still tiny pullets.—C.

POULTRY IN CONFINEMENT.

BEING still a wanderer and visiting the locality of "the Sutors of Selkirk," I was much struck there by a poultry yard on the roadside under wire, containing seven hens and a cock. Finer Golden-pencilled Hamburgs I never saw, nor in better trim. When standing and admiring them, the owner, apparently a workman of great intelligence, accosted me, and I found that under his care the birds were very profitable. Your most excellent Journal only reached me yesterday, and I regret to find a stupid error in my note on page 146. I inadvertently wrote feet instead of yards; my run is 16 by 3 yards under wire. Please correct this, and greatly oblige—AN OLD FARMER.

MR. S. TAYLOR states on page 146 that he has obtained 942 eggs in the season from nine hens, two of which he killed in June. This gives an average of about 120 eggs to each hen. It would doubtless be interesting to many besides myself to know with what breed (were they a pure cross, or what we should call mongrel?), such results were attained, and under what management? What weight of corn does each hen receive? The particulars promised by "AN OLD FARMER" will be equally interesting, but he surely must correct his figures.—AN INQUIRER.

FOWLS UNSATISFACTORY.—Will you, if possible, through your valuable paper try and throw some light on the subject of my fowls? I have kept poultry above thirty years and have never had so few eggs as this winter, and even up to the present time have very few. The fowls do not look as they ought because they are always well fed, and the same people have attended to them for years; but as chickens they made a sort of coughing noise or sneezing in the throat, and they never appear to have got over it, at least that is the only thing I can say to account for their doing badly. I have given them Beach's food occasionally to see if it would benefit them, but all these things are very expensive. Can anyone recommend me anything to give them a tone and a start to doing better?—E. P.

CRESTED DUCKS.—"CONSTANT READER" inquired last week as to crested Ducks. There is not, as far as we know, any distinct breed of crested white Ducks. We have seen specimens both here and in Ireland, but more frequently in Ireland. They could doubtless be obtained without much trouble, and a little careful breeding would easily establish the crests as a permanent feature. We have often wondered that some fancier did not take them up.—BUFF.

OUR LETTER BOX.

Hedges for Farms (*An Old Subscriber*).—You will find an article on fences in our issue of January 9th, 1879; also on January 9th, 1878, you will find a practical article on the management of hedges in Lincolnshire. This refers to thorn or quick hedges, than which nothing can answer the purpose better where cattle are enclosed. We know the Myrobella or Cherry Plum grows quickly, but have not had experience with it as a fence against cattle. If any of our readers have tested its merits in this respect we shall be glad to hear from them. If you do not possess the numbers above quoted they can be had from the publisher in return for 7d. in postage stamps, asking him to send you Nos. 878 and 928 of the *Journal of Horticulture*.

METEOROLOGICAL OBSERVATIONS.

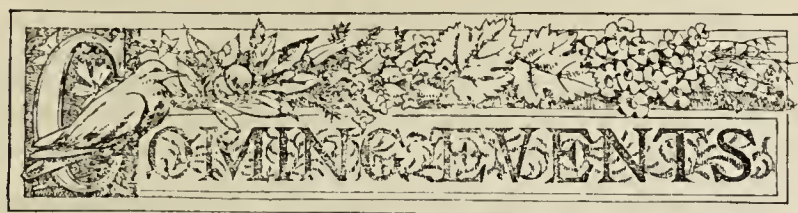
CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. February.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun.	19	30.577	41.4	37.0	N.W.	42.9	53.7	35.8	91.2	31.1	—
Mon.	20	30.827	36.8	35.8	N.W.	41.0	48.2	32.2	81.5	28.7	—
Tues.	21	30.607	47.3	43.7	N.	41.1	52.3	36.4	59.3	36.6	—
Wed.	22	30.643	44.6	44.0	W.	42.1	53.4	39.9	76.5	33.8	—
Thurs.	23	30.429	43.0	39.5	N.W.	42.8	50.4	42.2	51.1	40.4	—
Friday	24	30.161	41.2	39.8	N.E.	42.5	49.4	40.0	86.9	38.5	0.018
Satur.	25	29.870	49.4	46.9	S.	42.7	53.7	40.7	61.2	35.6	0.232
		30.444	43.4	41.4		42.0	51.2	38.2	72.5	34.7	0.250

REMARKS.

19th.—Fine; bright throughout; starlight evening.
20th.—Dull at first; bright in middle of day; overcast afternoon; barometer again very high.
21st.—Slight rain in early morning; mild, dull, overcast.
22nd.—Dull and hazy at first; fine, bright, spring-like day.
23rd.—Calm; overcast.
24th.—Hazy and dark at first; fine bright day; cold wind and dusty.
25th.—Mild and rainy throughout, with a good deal of wind.
Temperature slightly lower than in the previous week, but still exceptionally high. Strong wind with rain in night of 25th.—G. J. SYMONS.



9th	TH	Royal Society at 4.30 P.M.
10th	F	Quekett Club at 8 P.M.
11th	S	Royal Botanic Society at 3.45 P.M.
12th	SUN	3rd SUNDAY IN LENT.
13th	M	
14th	TU	Royal Horticultural Society, Fruit and Floral Committees at
15th	W	Society of Arts at 8 P.M. [11 A.M.]

FERTILISERS AND THEIR USE.

It may be taken for granted that were stable-yard manure cheap enough and plentiful enough little other would be sought after. But in many localities it is not very easily obtained, and this makes a substitute necessary, or at least desired. A perfect substitute, however, can hardly be found, although mixtures of the different compounds now in the market may be made that will prove very satisfactory for a long time.

Stableyard manure, although, perhaps, the best manure, is not quite perfect either, as I have before pointed out in these pages. For an ordinary rotation of garden crops it is deficient in potash, and so, in order to secure the best results, more requires to be used than would at all be necessary were only a little potash used along with it. Where animals are kept or their urine can be had this want is easily made good, for there the potash, wanting in the solid matters, is to be found. But those who have a difficulty in procuring even a small quantity of the solid cannot obtain the liquid at all; hence it does them no good to know that the potash is in the liquid; still the want may be made good at a very trifling expense. By the use of a quarter of a hundredweight of sulphate of potash one ton of stableyard manure may be made, worth fully two tons of manure not so treated. For land that has been long dressed with stableyard manure alone, or other fertilisers also deficient in potash, there will be a surplus of phosphoric acid in the soil lying useless for want of potash, and in such cases half a hundredweight may be added to the ton of manure, with the result of making it equal to four tons not so treated for a time—*i.e.*, so long as there is a surplus of other matter in the soil to work up.

It is preferable to add it to the manure heap rather than to apply it direct to the soil, and this for a double reason. Potash in this particular combination is not immediately available, and seldom affects the current crop, although by-and-by it becomes plant food. Not long since I saw it liberally applied to Potato land that was known to be deficient in potash, and yet the Potatoes so treated were hardly superior to those not treated. In years after, however, anyone a mile off could trace its effects on the Clover crop, for where the sulphate had been applied the Clover grew luxuriantly, where none had been given it was insignificant. It had taken the sulphate all that time to become converted into the carbonate, in which state it is alone available practically as plant food. Applied to a warm heap of manure this change takes place very much more

rapidly; and this brings me to state the second reason for thus preparing it.

A fermenting manure heap gives off much ammonia, which not only pollutes the air, but is really a very valuable part of the manure. Carbonic acid also escapes, and this, too, is a loss, though not so important as the loss of the ammonia. Now, sulphuric acid has a greater affinity for ammonia than it has for potash; and as the ammonia comes in contact with it, it leaves the potash and combines with the ammonia, forming one of the most exciting manures we possess. This must be regarded as a clear gain. When the potash is forsaken by the sulphuric acid the carbonic acid takes its place, and thus the potash is made ready for plant food. As both the substances described are very soluble in water, both will be washed from the heap if exposed to the rain, hence some covering must be used.

In using this manure it must not be applied heavily, for it is much more quickly effective than ordinary manure. For top-dressings to Vine and other fruit-tree borders it is much better than ordinary manure, for such demand just what this has, but what ordinary manure has not. As its fertilising matters are very soluble it makes a top-dressing for everything, which takes effect at once if rain or waterings follow. On light soils it should only be applied when dug-in in spring, and as top-dressings either in spring or summer. On clay land its virtues will be held longer by the soil, and it may in such cases be applied in winter.

When manure of this kind is scarce, and, indeed, in any case, every scrap of decaying vegetation should be carefully saved and placed in a heap to decay. This heap mixed with soil will render a garden to a great extent independent of manure, for when everything is replaced that is taken from the soil no further application of manure is necessary. There are, however, some things always going never to return, and these must be replaced. When neither stableyard manure nor sewage is to be had substitutes must be provided.

Possibly guano is the best substitute for ordinary manure, and it is easily applied. From 1 to 2 ozs. to the square yard, according to the soil, the crop, and the necessity for manures, may be taken as an ample supply. This should be applied to the surface of the soil not long before cropping the land, and either well raked or lightly forked in; it should not be dug in deeply. For top-dressing it is also very suitable. I have found it answer well for all vegetables except Potatoes, Peas, and Beans. When it is used alone a good dressing should be given, say to all kinds of Cabbages and Cauliflowers, and then Potatoes may follow without manure. When this plan is adopted, however, much better results will follow if a mixture of guano, nitrate of soda, and sulphate of potash in equal parts are applied to the crop which precedes the Potatoes, Peas, Beans, &c. In this case fine crops of these vegetables may be expected. I have found that Onions do well on the same land every year with a mixture of guano and sulphate of potash annually applied.

For flower beds no better substitute for stableyard manure can be found than a good guano; but it is important to save all decaying plants and leaves from the flower garden, which, when decayed and made into a compost with soil, will be quite sufficient by itself, more especially if all prunings from shrubs, Roses, hedges, &c., are burnt and their ashes applied to the

beds. When this is done a very light dressing of guano, or the chemical mixture already named, will be enough to maintain the soil in a fertile condition. Once every few years a light sprinkling of lime should be given, and in inland districts common salt. The addition of these alone would, in many cases, prove of greater benefit than even a good dressing of manure; but this only applies to regularly manured land.

Bonemeal and superphosphate of lime are valuable manures, but cannot be considered as proper substitutes for ordinary manure in the garden. Specially good effects have followed their use in the field, but always on land that had been systematically robbed of its phosphoric acid by means of the grain, cheese, milk, and other farm products, the ashes of which are particularly rich in this compound, and which had never been returned in quantities sufficient to compensate for its removal. For plants in pots and one or two special purposes the use of these fertilisers has sometimes a special value, as I will endeavour to show, but they cannot indefinitely take the place of farmyard manure. A perfect substitute suitable for all soils would require to have all the mineral matters present, whereas bonemeal possesses only phosphoric acid and lime. The same may be said of superphosphate. Both are good for lawns as well as pasture land, the phosphoric acid directly encouraging the growth of fine grasses on the former, and particularly nourishing grasses on the latter.

As in the open ground so it is with the soil in pots. Properly prepared farmyard waste or sewage makes the best fertilisers. Lately I recommended that ordinary manure should be laid up in a fresh state with the soil months before the soil is wanted, and also that urine should be added to make it perfectly fertile. It is only necessary to refer to this now, for my present purpose is to point out how best to do without such a preparation. Neither is it necessary to say anything about leaf soil, which is at once soil and manure. Good soils are necessary to success, and we can hardly employ artificial compounds as substitutes for loam, peat, &c., for plants in pots. But failing ordinary manure for making them rich to begin with, and sewage water to maintain their fertility, after the first-applied food has been taken out we can apply some of the artificial manures with marked benefit.

For enriching loam at potting time with a fertiliser that will last there is nothing to surpass fresh bonemeal. Standen's manure I have also found very good, but it is decidedly expensive when used on a large scale. The same remark applies to all special manures distinguished by manufacturers' names, hence they cannot be economically applied extensively. A 6-inch potful of bonemeal and a 3-inch one of Standen's manure to a bushel of soil at potting time will be an ample allowance.

Bones not being a perfect manure cannot sustain a vigorous growth indefinitely. It is well to add to the heap of soil, as long before as possible, a little sulphate of potash or a little guano, but in the latter case a few weeks before will be amply sufficient. Better still, a little of the manure treated with sulphate of potash and laid up a couple of months at least before the soil is used would prove of great benefit. For strong-growing annuals, such as Balsams and the many coarse-growing plants used under the name of subtropicals, no better matter can be employed than night soil; but this must be thoroughly mixed with the soil and kept one year to prepare. Soil so enriched will cause such plants to grow very luxuriantly, but it is not suitable for plants which have to remain years in the pots. Soot mixed with soil in small quantities is often employed beneficially. It has a deterrent effect on worms, which should never be suffered in pots, and owes its manurial value chiefly to the ammonia distilled from the burning coal. It is generally present as a sulphite, the sulphurous acid in its composition being also manufactured from the sulphur found in most coal.

As long as soil is only partially occupied with roots, and so still presenting in its exhausted body sufficient plant food, liquid manure should not be applied. Amateurs and beginners often make a mistake in this. Soil is a capital deodoriser, as it fixes any ammonia or other manurial matters passed through it by water. Soil thus treated becomes destructively rich, for it must never be forgotten that excessive supplies of manure

are poisonous. This state of matters is rather common, to judge from the answers in the correspondents' columns. One golden rule applies: Never give liquid manure till you are certain the soil in the pots is full of roots, and that the plants are really in want of more food, and then give it in very small quantities. Plants take very little out of the soil altogether; much more is washed out by the waterings.

Top-dressings are often better, especially in unskilled hands, than applications of liquid manure. Animal droppings, ordinary manure, or specially prepared manure, mixed with their own bulk of soil, form good top-dressings for most plants in pots. Standen's or Clay's fertilisers are also very good, as well as other advertised preparations, but only small quantities of such must be used at a time.

Liquid manure may be made from stable drainings, but the water should just be tainted with such. No better liquid can be given than water tainted with sewage. When used so weak as this it may be given every time water is applied to plants of which the roots crowd their pots. Never give even the weakest liquid manure to dry soil. Such soil, instead of passing off the surplus as soil will that is beginning to become dry, will absorb the salts, &c., till those are present in quantity sufficient to prove destructive. A plant which is in soil healthily moist will take up what it wants. One flaccid for want of water will absorb any soluble matter, even to its own repletion and destruction, if applied in water. Never, then, give liquid manure to plants actually suffering from an insufficient supply of water; better still, never allow your plants to reach that stage.

Stable drainings, sewage, and other such liquids as guano water, are often objected to on account of their disagreeable smell; indeed, their use is proscribed in most conservatories which open into the dwelling-house, and in many which do not. This difficulty is best overcome by employing inodorous top-dressings to plants, the roots of which fill their pots and cannot find food enough to keep them growing healthily; but liquid manures which are odourless may also be employed. Soot water made and applied as described in the correspondents' columns in the Journal for Feb. 23rd may be applied; I have already pointed out in what sense and how far it is a manure. Many soluble inodorous manures are sold which are very suitable; but they are, without exception, excessively high-priced. Sulphate of ammonia sparingly applied will for a time maintain a vigorous growth, but it is only the ammonia that causes this. Nitrate of soda is equally valuable, its value depending on the nitric acid. These are often used in much too large quantities; a teaspoonful to a gallon is ample for root-bound specimens of Fuchsias, Chrysanthemums, Zonal Pelargoniums, &c., while for more slowly growing plants it should be applied weaker. Nitrate of potash is even better, but more costly than either. From three times a week in the growing season to once when growth is less is often enough. These should be dissolved in the water a good while before being used, so that the water may become of the same temperature as the air of the house in which the plants to which it is to be applied are growing. Mixing nitrate of soda with water reduces its temperature very much—a fact that may be taken advantage of; it may serve on an occasion as a substitute for ice. I once had the curiosity to plunge a thermometer in a canful of water in which water at 72° had been mixed with nitrate of soda, and it speedily sank to about 40°. At this temperature it might be good for cooling summer beverages, but most decidedly unsuited for stove plants.

Liquid manures which are suitable for plants in pots are also suitable for plants out of doors, only less-refined matters may be employed. In showery weather it will be enough to sprinkle such substances as I have named on the surface of the soil, when dry liquid manure will be more appropriate and doubly beneficial.

In the vicinity of towns the rain that descends is generally so charged with ammonia that it forms a liquid manure of no mean value; indeed quite enough to furnish enough (in some instances more) to supply the plants generally grown in pots with at least all the nitrogen they need. This is especially the case if the water which falls is collected from sooty roofs; indeed such water, even in the country, contains an appreciable amount of ammonia, sulphuric, nitric acid, &c. In some dis-

tricts the rain water becomes charged with deleterious acids to such an extent that it is quite unfit for using.

Near the sea rain water is often charged with common salt to large extent. From this source land near the seacoast is always charged with this compound, so that there is no need in such localities to apply salt, or, when other nitrogenous matters are supplied, nitrate of soda. These substances, however, in inland districts often have a wonderful effect, for land may be sterile for want of these salts. Being so soluble they are easily washed out by waterings and drenching rains. It is well, therefore, to bear this in mind when the application of salt to land is premeditated.

Not long ago we had occasion to note the luxuriant growth of plants in a conservatory. The water used was largely collected from the roofs of the various buildings connected therewith: On these roofs starlings and pigeons habitually crowd. The rain which falls on such roofs must be rich in plant food. Forgetting this, the gardener in charge had been in the habit of further charging the water with stimulants. The effects were not satisfactory; when only the "pure" water was given the results were very satisfactory. The lesson is obvious.—SINGLE-HANDED.

VINES AT LONGLEAT.

(Continued from page 170.)

EXTENSION OR RESTRICTION?

THE life of these young Vines was begun with the intention of allowing them to extend a little each year. Once already had we been thwarted in our designs, when the temporary plants in the middle of the house blocked their way. Now there was a second block, and the question was once more brought prominently forward whether there should be a continuance of moderate extensions or whether restriction should now be practised.

It is very convenient to have these different epochs in the life of a Vine, when we can look round, take stock as it were, and have it entirely at our pleasure once every few years to decide afresh which plan we will follow. Had my enthusiasm for the extension system been damped I could now have proceeded with the restrictive one which had once more forced itself in my way (for be it remembered that when a Vine is cut close in to the old wood at its terminal shoots as well as its side shoots it is no longer grown on the extension system whatever its present size may be); on the other hand, did I wish to go on extending, there need be no limit to that for some years.

It was a momentous question, and one which had to be debated within myself more than once. This sort of debate often crops up between "blind enthusiasm" and the evidence of "plain facts." In this instance B. E. would say, "Extension of course is the plan to follow. It is the one you have followed so far with success, it is at once the most natural and most beautiful; the plants must be longer-lived, and you will become famous for growing them." "All very well," says P. F., "but at present the best Grapes have been grown on restricted Vines. Extension may only mean growing timber, and that is not the main point. You have good Vines and good fruit. 'Rest and be thankful,' what more do you want? You are on safe ground now, but if you move far along you will be on that which is unexplored and consequently full of unknown dangers." "More danger, more honours," whispers B. E. "It is nothing to grow Grapes nearly as well as other people do; try and beat them." And in the end I decided on giving the extension system a further trial without committing myself wholly to it for the present.

The mode of proceeding was something like this—A Vine at each of the four corners of a compartment was brought down and trained lengthwise of it on one of the lower wires. In doing this four or five other Vines had to be crossed, and these were henceforth temporary ones. Their lower shoots, where they interfered with the growth of that which was to be a permanency, were rubbed off as they appeared, and shoots were trained up at regular intervals from and at right angles to the horizontal Vine. No great space was made bare at one time, but a sharp look-out was kept, so that there should be at least a foot clear before every new rod. These new rods grew very fast, and were treated precisely in the same way the young Vines were during the first year of their existence—i.e., the side growths were kept pinched in to one or two leaves, and the terminal shoots were stopped when they had made as much growth as they were likely to ripen, and at pruning time were merely shortened to a good eye.

That this treatment suited them is testified to by an engraving from a photograph of the Muscats which appears in the *Journal of Horticulture* for December 21st, 1876. In the notes which accompany this engraving it is stated that on the opposite side to that shown, "the number of plants were reduced to four last spring with very satisfactory results. A photograph of that side was taken; but as it was from the other end, and consequently in opposition to the sunlight, it did not come out satisfactorily." In the same notes the measurements of the stems of the largest and smallest of the four corner Vines are given as follows—"The circumference of the largest is 13 inches, and that of the smallest 10½ inches, measured just above the ground. At 2 feet 6 inches from the ground the largest measures 8½ inches, and the smallest 7½ inches." It is added, "So much for the wood; now, what about the fruit? Well, all the fruit is perhaps above the average for Muscats, but that on the restricted Vines will bear no comparison with the rest. It did not colour so early or so well, and is inclined to shrivel in places, while that on the large or extension Vines is perfect in every respect. This is not because the large Vines are not carrying a fair crop; they ripened from fifty to fifty-three large bunches each, averaging considerably over 2 lbs. a bunch." These notes were written by myself, and possibly I did not say quite as much in praise of the fruit as a friendly visitor would have done. But it will be seen that I had already become a confirmed extensionist; and I said in concluding those notes "that all fruits in my opinion are better when the plants which bear them are allowed to extend somewhat every year." This opinion I still hold, even as far down the scale as to include Gooseberries and Currants, and I carry the idea still further by invariably growing Melons and Tomatoes on the extension system. Only the four corner Vines are now left of the Muscats, and shortly the question will have to be decided again, Is it to be extension or restriction?

There is not much difference in the measurements of the four stems now, and the smallest is 18 inches in circumference just above the ground. Strange to say the order in size is reversed, which I account for in the following way—At the time of the former measurement, which was a little more than five years ago, the young man who was entrusted with the pruning did not look favourably on some of my eccentric innovations, and from the best of motives no doubt (which I

am sorry to say I failed to appreciate) cut the growths off close to the stem of the largest Vine up as far as the trellis, and only two or three shoots have since started from there. Now I always consider that the rapid enlargement of the stem was mainly due to these growths, indeed they were left there for that purpose, and I am not surprised that without them the circumference should not increase at the same rate as it had done.

UNDER A CLOUD.

Till 1876, the year in which the photograph last alluded to was taken, the Vines had done well with the exception of what I have noted about the Hamburgs; but now, although the fruit was good and it finished off well, there were signs that the Vines were not receiving all they wanted, for they made very little growth after the stoning of the Grapes. They had done very well till then, but the stoning seemed suddenly to have brought a check on them; and although I do not think any stranger would have noticed it at the time, it was too plainly visible to me to allow me to feel comfortable. It is not, of course, to be wondered at that Vines should show signs of exhaustion when they have grown fast and fruited freely for half a dozen years while their roots are confined to a small space, and they have had very little besides water applied to them from the time they were planted. But in this case the collapse came on without any warning, for only a year before everybody was remarking how strong they were, and as I had received a lesson from the Hamburgs in that direction I was naturally anxious to avoid another of the same sort. Up to the present it had seemed as if the little soil they were growing in was inexhaustible, now all at once it showed unmistakeable signs that something was deficient.

All that could be done was now done in the way of applying liquid manure; and in the autumn, as soon as the fruit was coloured and while it was still hanging, the brick partitions were pulled out, a trench a yard wide was made and filled up with new turf, to which a good sprinkling of bones and some charcoal was added; assistance was also given to the surface of the border by means of a good top-dressing, and liquid manure was applied once or twice before spring. This had the effect of making the Vines grow better the following season; but with the exception of the Hamburgs, which had been treated in the same way, although they had not gone so far on the down-hill road, the fruit was not satisfactory, the flowers did not set well, the berries were irregular in size, and many of the bunches were ragged-looking. However, the Vines made excellent growth, giving us good hopes of better things the following year, and in that we were not disappointed. We now continued the top-dressing and supplying liquid manure, hoping to prevent anything like such a disaster occurring again. But it did occur again, and this time there was no new soil to remedy the evil, the supply having already been limited to twelve loads a year, which is not sufficient to grow Strawberries, Melons, and flowering plants, and, besides, these twelve loads are not of such a quality as I should choose myself. Well, we know that necessity is often only a friend in disguise, and in this instance it set me thinking and looking out for some other plan to overcome the evil. The Vines had certainly made wonderful growth at first, and had produced good fruit. This led us to believe that it was the best soil in which Vines

ever grew, but it had shown signs of exhaustion very suddenly, and the new material we added had not lasted as long as I had seen soil last before under similar conditions. Perhaps after all there was not so much in the new soil of this neighbourhood as it had been credited with since my arrival, and this idea was confirmed when it was remembered that good Grapes had not been grown here for at least many years before my time. It was quite possible that the extraordinary vigour was the result of the general treatment given, which I was quite aware differed in many respects from that practised by other growers, and that in reality the same thing would have happened had any tolerably good soil been used. When one has signal success in the cultivation of any plant or fruit it is always supposed to be the soil or some peculiarity of the neighbourhood which is the primary cause of the success. Of course the cultivator receives credit for making the most of such advantages, but it seldom occurs to anyone to think that the success is the result of any special system of culture, and, indeed, the cultivator himself if he is not without modesty (and I do not think a successful man ever is), although he takes a certain amount of credit to himself, generally feels that there is something which favours him more than others, and that possibly were he to try his hand under other conditions he would not succeed so well. At one time I was not altogether without this sort of feeling, and, indeed, said something like the following, "I have the best vinery and the best soil in the country; if I fail to grow good Grapes it will simply be through a want of skill." Well, I did fail temporarily, and undoubtedly it was owing to a want of skill. But although I still believe in the statement about the vinery I have changed my opinion as to the character of the soil, and have altered my tactics accordingly.—WM. TAYLOR.

(To be continued.)

REPOTTING FERNS.

THE season having arrived for the above operation, a few words regarding it will probably be acceptable to many of your readers. The best part of the year to repot Ferns is early in spring, as soon as the young fronds have commenced growing in the crown of the plant. This is a sure sign the roots are becoming active, and the plants may then be repotted with safety without breaking the old ball of soil in pieces or injuring the roots in any way; but should the plants be in an unhealthy state through bad drainage and require the greater part of the old soil removed, they should be attended to immediately the roots commence growing, or there is great risk of damaging the first fronds.

Ferns do not require much root room if plenty of water is supplied during the growing season, with weak liquid manure made from cow or sheep dung twice a week, when they are well established in the pots; so that, unless large specimens are wanted, it is best only to give a small shift.

Good drainage and plenty of it is absolutely necessary. As regards soil, many people have an idea that Ferns will not succeed unless potted entirely in peat; but this is a great mistake. A compost composed of three parts moderately light turfy loam, two parts good sweet leaf soil, about one-tenth of the whole good sharp sand, and a good sprinkling of pounded bricks or charcoal to keep it open and sweet, will suit most of the larger kinds. Pot firmly, and place them in a close and moist temperature until they are well established in the new soil, at the same time being very careful not to give too much water.—W. H. DIVERS, *Burghley*.

THE EFFECT OF SALT ON PEAS—A NEW PEA.—I recently received some Peas of a very promising variety, "Bruce Findlay," not yet in commerce, for trial; and, in order to correct the results I should attain by one system of growth, gave a quantity to one of our most intelligent local gardeners to grow by a different method. Those have failed, and how may be instructive. He sowed them an inch

asunder in the most favoured part of his garden, and covered them with the decomposed mounds on the surface of an Asparagus bed. Unfortunately he forgot that these mounds were heavily impregnated with salt, which had the effect of destroying the young Pea growths as soon as they touched it. Mine are progressing admirably, and I shall be able to test its merits during the season.—W. J. M., *Clonmel*.

NOTES ON PRUNING ROSES.

THE time has now arrived when Roses will require pruning, and from the unusually mild winter many persons are uneasy on the subject. The uppermost buds have produced shoots in many cases from 2 to 3 inches long, and to cut these early growths away appears to be injuring the plant. It is not so, however; for though we can scarcely be said to have had a real winter's day up to this time, it is doubtful as to what weather we may experience between now and next June. Experience teaches us that frost is frequently injurious in May, and we must therefore prune for safety as well as for continuity of bloom. With these objects in view those who have left their Roses untouched up to this time will be better repaid when the summer months arrive than those that have been impatient to check the precocious growths. My advice is that pruning is best done during the first fortnight in March: by pruning then the sap is concentrated in the lower part of the plant, which causes the lower buds to plump up previous to starting, and by this delay we are brought forward to more genial weather. How frequently do we find in early-pruned Roses the flowers coming with hard green centres. This is usually the result of late frost and ungenial spring weather.

The Roses of the present day are, generally speaking, on the Briar stock as standards, half-standards, and dwarf standards, or on the Manetti as dwarfs only. Roses on the Manetti bear cutting back well, as the object is not generally to retain such symmetrical heads as on the taller standards; but a very good plan, and one which I often adopt, is, that instead of cutting a strong growth entirely away, is to remove the tips, and if it does not produce exhibition flowers the blooms will add to the quantity and be found most useful for decoration. If flowers of greater substance are required prune hard—that is, prune all the Hybrid Perpetual section to three or four plump buds, and wherever practicable cut to a bud that points outward, as by following this simple practice it causes the bush to spread and the branches gain strength, whereas if the inner buds were left the growths would be directed inwards, and thereby become crowded and considerably weakened. I am fully aware that at all times even this simple procedure is not practicable; therefore the greatest secret in Rose-pruning is doubtless bringing practical knowledge of the characteristic of each variety in operation; but in writing it is impossible to do this, therefore it is well to explain collectively and briefly as possible the general method. In dealing with Baronne de Rothschild, for instance, the growths are so rigid and the buds of irregular substance, that I have found it a good practice to select the plumpest bud for cutting back to, while with Charles Lefebvre and other dark varieties all the lower buds are of equal substance and plumpness. In these cases it is easy to select. Teas and Noisettes require far less pruning than the Hybrid Perpetual section, cutting away weak and unripened growths and thinning out weak wood. After pruning gather up the fragments and dig the ground lightly, which will give a neat appearance to the beds.—J. W. MOORMAN.

THE PAST WINTER AND THE PRESENT SPRING.

MOST welcome, perhaps because wholly unexpected and exceptional, has been the winterless winter that that we may now consider gone. In this district, with the exception of a few snowflakes which melted almost before they fell, and one or two sharp frosts which occurred about the last days of December, nothing approaching the normal winter temperature has been experienced. January was mild, occasionally rainy, and if some fringes of the fogs which prevailed elsewhere slightly shadowed these parts, we were more than compensated by an almost increased brilliancy of sunshine afterwards. February throughout has given us clear and increasing light, and little if any rain until the concluding days; a very high temperature often, an almost entire absence of wind—in short, it has been like the best April weather without its uncertainty. March now blusters strongly, and there are indications that we shall not be forgotten by the easterly winds.

Spring flowers everywhere are beautiful and abundant. Bees were seen visiting their blossoms unusually early. The birds, inspired by plenty of food and warmth, are in full call to one another, and as early as February 20th a blackbird's nest with

eggs in it was found in a garden in Scotland close to the Moray Frith. Vegetation generally, however, as far as fruit trees are concerned, seems happily not so advanced as might have been expected. Apricots are thickly set with as yet closely-shut buds. Our Rose trees have pushed on wonderfully, and it is hard to say how their present state may affect their future vigour.—A. M. B., *Mid-Lincoln*.

CEROPEGIA GARDNERI.

AMONGST interesting climbing plants for a warm plant stove this elegant species of *Ceropegia* is well worth notice. If planted out it grows quickly, and it is not too leafy to injure other plants by shading them too much. It has the merit of producing its singular flowers in profusion in the axils of the young shoots, which are themselves so flexible that they may be trained in any



Fig. 39.—*Ceropegia Gardneri*.

limited space which may be at command. Cuttings root freely in clean sand on a slight bottom heat in a stove temperature, and soon make flowering plants. We have bloomed it in the cutting pots even, and also as a trained plant on a wire umbrella. Another species, *C. Saundersoni*, is of a more fleshy habit of growth, and also, with the old *C. stapeliiformis*, deserves a place in all gardens where plants of a botanical interest are appreciated.—D.

THE APPLE ELECTION.

IN response to the invitation given through the medium of your Journal for lists of the best twelve kitchen and twelve dessert varieties of Apples I have received replies from twenty-four different counties. Eighty-five varieties have been named for kitchen purposes and eighty-two for dessert, but I have only given the names of those that received more than three votes.

Where Apples have been named, sometimes as culinary and at others as dessert, I have put them in the list for which they received most votes. There were not many, Duchess of Oldenburgh, Reinette de Canada, Gravenstein, and Dutch Mignonne being the chief.

Before giving the votes I may premise that an Apple election would not be of much value if it only caused the reader to take

the first twelve or more from each list and plant them. It simply points out those that are considered the best to grow if soil and situation are suitable, and especially in the case of dessert Apples, if they are adapted to the taste of the consumer. It is impossible to give, in a short account like the present one, an analysis of the varieties suitable to every soil, but I have endeavoured to point out in a few notes those sorts that are usually successful everywhere both in their cropping qualities and freedom from canker; at the same time I have mentioned a few that, although high in the lists, cannot be depended on. The following are the names of the varieties sent, with the number of votes given to each:—

KITCHEN.		DESSERT.	
Wellington (Dumelow's Seedling)	35	Cox's Orange Pippin	39
Lord Suffield	34	Ribston Pippin	35
Blenheim Pippin	32	King of the Pippins (Golden Winter Pearmain)	28
Warner's King	26	Kerry Pippin	23
Keswick Codlin	22	Devonshire Quarrenden	21
Hawthornden	20	Irish Peach	20
Cellini	16	Sturmer Pippin	18
Alfriston	15	Court Pendu Plat	18
Stirling Castle	15	Margil	16
Winter Hawthornden	14	Adams' Pearmain	15
Northern Greening	14	Scarlet Nonpareil	12
Mère de Ménage	12	Worcester Pearmain	12
Cox's Pomona	11	Red Astrachan	12
Ecklinville Seedling	11	Old Nonpareil	10
Reinette de Canada	11	Golden Reinette	9
Tower of Glammis	10	Cockle's Pippin	9
Loddington (Stone's Apple)	9	Court of Wick	8
Emperor Alexander	8	Mannington's Pearmain	8
Golden Noble	8	Summer Golden Pippin	8
Belle Dubois (Gloria Mundi)	7	Wyken Pippin (Warwickshire)	7
Manx Codlin	7	Old Golden Pippin	6
Annie Elizabeth	6	Golden Harvey	6
Yorkshire Greening	6	White Joanetting	6
Small's Admirable	6	Gravenstein	6
Wormsley Pippin (Dr. Harvey)	6	Braddick's Nonpareil	6
Duchess of Oldenburgh	6	Cornish Gilliflower	5
Hanwell Souring	5	Red Margaret (Red Joanetting)	5
Peasgood's Nonsuch	5	Golden Knob	2
Beauty of Kent	5	Fearn's Pippin	4
Lord Derby	5	Ashmead's Kernel	4
Waltham Abbey Seedling	5	Melon Apple	4
Bedfordshire Foundling	5	Lord Burleigh	4
Winter Quoining (Sussex Duck's Bill)	5	Pearson's Plate	3
Kentish Fillbasket	5	Golden Russet	3
Brabant Bellefleur	4	Claygate Pearmain	3
Hollandbury	4	Brownlee's Russet	3
Norfolk Beefing	4		
Minehal Crab	4		

It is to be noticed that some varieties that have received many votes do not succeed everywhere. Lord Suffield, for instance, is being planted by hundreds in some districts, and in others grubbed or headed and grafted. I have discarded it myself in favour of the Ecklinville and Loddington, as being almost sure croppers and free from canker. The same may be said of Cox's Orange Pippin, which has received the greatest number of votes in the combined lists. Although it has been in cultivation for some years this is the first season that it has taken a prominent place in the public market, due to its failure in cropping, excepting in certain seasons. I believe a light hazel or sandy loam to be the most suitable soil for it, both in preventing canker and causing fruitfulness; but as this cannot always be obtained it is as well to be prepared with trees of other varieties that are not only useful in themselves, but, after being grafted, are capable of acting as foster-mothers to others less constitutionally adapted to the soil. Such varieties as Keswick and Manx Codlins and Hawthornden are useful in themselves and also good to graft on, the latter, on account of its thick rind, especially so.

The Wellington, which heads the kitchen list, has not been so successful the last few years in this district, and has been superseded in some cases by newer varieties. The Blenheim Pippin, on account of its lateness in fruiting (usually twelve or fourteen years after planting), is not in much demand except by those who are willing to wait. At the same time it is a capital variety to graft on. When once it commences bearing there is no better variety for market purposes, as it is so suitable for both culinary and table use, and a great favourite with all.

Warner's King on account of its size and handsome appearance is becoming a great favourite. I am not quite certain of it yet as a pyramid or standard on cultivated ground, except, of course, certain soils; but as an orchard standard on pasture, or, better still, grafted on a free-growing tree, there are few Apples equal to it. The Codlins and Hawthornden I have alluded to already. Cellini I cannot recommend on account of its certainty to canker on most soils. The same must be said of Alfriston, although it is a far superior Apple and should be grown if possible. Stirling Castle is one of the most useful Apples we grow; and the New Hawthornden, although not so certain a cropper, is worthy of cultivation. Northern Greening requires a stiffer soil and is

suitable for orchard purposes. Mère de Ménage and Cox's Pomona are both handsome Apples and good bearers. The next one, Ecklinville Seedling, is one of the most prolific Apples we have, and is suitable as a bush; at the present time its white buds are conspicuous at some distance from the tree. Reinette de Canada unfortunately will not succeed in many places, but it is a most useful Apple in any way. The next two, Tower of Glammis and Loddington (Stone's Apple), are very popular both for market purposes and home use. The latter especially is largely cultivated about here—its home for the last seventy years; but on account of its slow growth it is chiefly grafted on older trees. Emperor Alexander is not much grown, but the Golden Noble is a good bearer and worthy of cultivation. Belle Dubois (Gloria Mundi) is another variety that is very uncertain. Annie Elizabeth I believe to be the coming Apple for keeping purposes; it makes a compact sturdy-growing tree, and if it bears out its present appearance will be found in every garden. The Yorkshire Greening is a good old Apple, but too straggling in its growth. Small's Admirable is not required if Stirling Castle is grown. Wormsley or Dr. Harvey, whichever is its true name, for they are described as different in the "Fruit Manual," is a good Apple for market purposes, and has been one of the most successful in the London markets this season. There it bears the name of Dr. Harvey, but I have seen it on the exhibition table as Wormsley Pippin.* Duchess of Oldenburgh (Borovitzsky) is a very free grower, almost too upright in habit, but I can strongly recommend it as being useful in both classes. Hanwell Souring is not a free bearer in its young state. Peasgood's Nonsuch has been very handsome this season, but I have not grown it for a sufficient length of time to say more about it. Beauty of Kent and Lord Derby are both good. Of the rest the same can be said, with the exception that Bedfordshire Foundling is liable to canker. There are other kitchen Apples to which I will allude at a future date if your space will permit.

In the dessert list it is difficult to make a choice, as the best flavoured Apples usually are the most difficult to obtain. Cox's Orange Pippin I have already alluded to. Ribston Pippin and Margil are always desirable, but cannot always be grown. King of the Pippins (Golden Winter Pearmain and Seek-no-further) is one of these "too much alike varieties," as the Rev. C. H. Bulmer calls them, that is grown here for orchard purposes. When it attains a certain age it is usually a prolific bearer and in great demand for the London market. It is handsome in appearance but does not suit every taste. It is lacking in the quality of such varieties as the following—Mannington's Pearmain, Golden Harvey, Braddick's Nonpareil, Ashmead's Kernel, and Pearson's Plate. The Kerry Pippin and Devonshire Quarrenden are good old varieties. The Irish Peach and Sturmer are good bearers, the latter being the most prolific and best flavoured of the very late dessert Apples. The Court Pendu Plat on account of its late blooming—usually a fortnight later than the rest—is almost a certain cropper, but although handsome in appearance I do not consider it of good quality. Adams' Pearmain is very handsome when well grown; and of the Nonpareils, although the Scarlet has the better appearance, the Old Nonpareil is superior in flavour. The Red Astrachan has its appearance chiefly to recommend it, but the Worcester Pearmain has not only appearance but is a good cropper and makes a good tree.

The Summer Golden Pippin is a good Apple, but is not so free a bearer as the Yellow Ingestre, with which I think it is often confounded. The latter is always in great demand in the London markets. The Wyken (or Warwickshire Pippin) makes very fine standards when old, and has a beautiful flavour, but rather uncertain some seasons. The Joanettings are too well known to require any remark. Lord Burleigh I have no doubt will in time rival the Sturmer if it can bear comparison as a good cropper. One Apple that is not in the lists, Early Julien, is very prolific and good both for cooking and table. There are other varieties not alluded to, and some not in the lists that I will mention in a future paper. Allow me to thank those gentlemen who have forwarded lists, with many of whom I shall correspond during the season.—LEWIS A. KILLICK, *Langley, Maidstone.*

THE LYON LEEK.

As the season for sowing Leek seed is here, I would direct the attention of your readers to this fine new variety, which I have grown this past season. It is certainly the largest of all the large Leeks grown in this district famed for its great Leeks, and shows are held every autumn for the vegetable alone. The Henry's Prize and Ayton Castle, both originated in the Border counties,

* These are quite distinct varieties.

and have long held a place as show varieties; but nearly every exhibitor grows his own strain and saves his own seed. The Lyon has eclipsed all other Leeks wherever it has been shown, and has been awarded many prizes. By sowing the seed in heat and growing the plants in light but rich soil, carefully avoiding any check, and finally planting out into very rich deep soil 18 inches apart in open trenches, giving a good supply of liquid manure every week, especially in dry weather, enormous Leeks can be produced by the beginning of December, weighing from 3 to 5 lbs., and blanched for a length of 14 to 20 inches. The plant is quite hardy, a feature often wanting in large Leeks, having stood in the open garden here unprotected during the last three very severe winters with the temperature sometimes 12° below zero.—JAS. THOMSON, *N.B.*

[We shall be glad if our correspondent can send us a specimen weighing 5 lbs., and blanched for a length of 20 inches.]

MUSHROOMS DECAYING.

I CANNOT help thinking there are plenty of us who could suggest a remedy for the above, and thereby relieve Mr. Welsford of some anxiety. Surely the numbers who grow Mushrooms successfully have at some time experienced the same difficulty as your correspondent. If not, they have been fortunate, and I and Mr. Welsford have been exceptions to the rule. Mr. Barter gave a few valuable hints upon Mushroom culture, but none of these—supposing my failures and Mr. Welsford's are identical—will meet the case. I have frequently used pieces of spawn about the size of walnuts, sprinkling at the same time the smaller pieces that were left over the surface—the latter in order to secure a few early Mushrooms; and if these are pulled clean off no harm will accrue to the principal part of the crop. This practice, however, I have discontinued, as it is apt to be misleading; and I have for some time discontinued the use of a dibble, preferring rather to open the holes for the spawn with the hand. To form holes with a dibble sufficiently large for pieces of spawn about the size of hen's eggs, or still larger, as recommended by Mr. Barter, they will, of necessity, be made rather deep; and these cavities, which no amount of ramming will close, may, if the bed be rather hot and moist, be a source of danger to the spawn.

The fact of abundance of Mushrooms appearing, however, proves the bed was properly spawned, and the only fault to be found with the few cultural details given by Mr. Welsford is the temperature at which the house was maintained. A temperature "kept at from 60° to 65°" is right enough till the spawn has run, or rather the Mushrooms are appearing, but later on is too high, 55° to 60° being quite high enough. In a house kept at the former temperatures "plenty of moisture" would be necessary, but anxious people do not neglect well-known details—on the contrary, are apt to overdo it, and unless I am much mistaken this has happened in Mr. Welsford's case. He has syringed too regularly and too heavily. When acting as foreman I am confident I spoilt more than one bed of Mushrooms entirely from misapplied zeal in regard to daily syringing the bed, walls, and floor of the house. Had I been satisfied with damping the latter all would have been well, but the frequent syringing of the bed I have no doubt was the cause of the greater part of the Mushrooms collapsing when about the size of peas. Excessive moisture, especially if the heat in the bed has fallen low, will result in a failure. We this season were obliged to form a bed with droppings spoilt by overheating when in a large heap of stable manure. They became very hot for a time, but soon rapidly declined, and by the time the Mushrooms were showing the heat was quite gone; in fact, it is doubtful if we should have secured a crop had we not made a hotbed under the bench to warm it. From this bed we commenced gathering Mushrooms in abundance about the middle of November, and we still continue to pull some. A rather high temperature was maintained in order to push on some Seakale and Rhubarb; yet during the whole of the time the bed was syringed three times only, and then not heavily, and the walls and floor were only damped occasionally.—W. IGGULDEN.

AS I have grown Mushrooms successfully for a number of years a few remarks may not, perhaps, be out of place. First, in answer to Mr. Welsford (page 110), as to the cause of Mushrooms decaying. When I first commenced growing them I had several disappointments just as those detailed in his letter, which I attribute to allowing the bed to become too dry after spawning and then suddenly watering when the Mushrooms appear, and I have no hesitation in saying there are more failures from this cause than any other. Mushrooms have been considered very difficult to cultivate, but my experience has led me to the oppo-

site conclusion, and instead of being a haphazard crop they may be timed to yield at a given period, according to the temperature and suitability of the house. For making the beds there is nothing so good as droppings from hard-fed horses. These we do not have stored up in the ordinary way, but they are allowed to remain amongst the litter at the dunghill until there is enough for a bed. The droppings and short litter are then shaken out and placed in a heap about 15 inches thick on the floor of a shed, and turned every morning for about ten days as a rule. In the time of turning some judgment is required. For instance, if the droppings are from a number of horses and are produced in one or two mornings, all being fresh, they will require turning for at least a fortnight; if, on the other hand, you have only one or two horses, a week will be quite sufficient, the object being to prevent the bed becoming too hot. In making the beds have the material placed on in layers, each layer being beaten firmly down until the bed is about 15 inches thick. In four or five days it will be ready for spawning. We break a brick of spawn into eight pieces and insert them into the bed just under the surface a foot apart, care being taken to press the manure firmly round them. The whole is then covered with a layer of good soil 1 inch deep, rather heavy than otherwise, and beaten moderately.

I have used almost all sorts of soil, in some cases as an experiment, in others as a necessity. One of the latter cases I will mention. During the long frost of the winter of 1879-80 we had not sufficient material to soil a Mushroom bed, everything being frozen, so we turned out a lot of old Chrysanthemums and used the soil, which had been very liberally mixed with ground bones—so much so, that when it was spread on the surface of the bed and smoothed over it looked more like an asphalt walk than a Mushroom bed. The results were marvellous, such a crop of large fleshy Mushrooms I never saw either before or since. Whether the bones had any bearing on the results I cannot say.

After soiling we never allow the bed to become dry, at the same time avoid watering, preferring to syringe the ceiling, walls, and floor of the house. But when water is required do not give too much at once, but lightly syringe often until it is damped through the soil. I have always found the best Mushrooms are from the coolest house, providing the temperature is not below 40°. The best dish of Mushrooms I ever gathered was from a cold cellar in the month of January, but generally speaking 50° to 55° is the best. I very seldom cover the beds with litter, preferring to keep a humid atmosphere.—WM. PLANT.

IN reference to Mr. Welsford's failure in Mushroom growing, it appears to me evident that he keeps the temperature much too high. Our Mushroom house here is kept at from 50° to 55° and never varies much, which is one of the secrets of successful Mushroom growing. We all must admit that where much fire heat is used it necessitates frequent watering, which is most detrimental to the spawn. I never have occasion to water my beds in winter, at least not until they are nearly exhausted from two to three months' bearing, but I start with a thorough system of damping the walls and floor of the house as soon as the beds are spawned. The beds are covered with soil about 1½ inch thick when beaten down, and this is covered with clean straw, keeping that moderately damp. I never take the covering off altogether, always leaving a little straw on while the beds are in bearing, so as to keep in the moisture as long as possible and prevent the necessity of watering. I prepare the manure in the usual way, but never mix soil with it. The quantity of spawn I use is three or four bricks to 24 feet square.—C., *Stoke-on-Trent*.

CULTURAL NOTES ON PELARGONIUMS.

LAST year I tried an experiment with the plants that were struck in March, 1880, and which were for winter blooming the same year. About September they were placed in heat in a span-roof house with a temperature from 55° to 60°. During March they were removed to a cooler house at 45° to 50°, where they bloomed well. In the middle of July they were removed from the house and the blooms were pinched off. They had a little top-dressing given to them, consisting of two parts loam, one part decayed fowls' dung, and one part of leaf soil. They were then placed near a north wall till about the middle of August, when they were removed to a sunny sheltered position where they had plentiful supplies of liquid manure to encourage growth. Thinking that we might have a few blooms from them early in the autumn, as we require plenty of bloom at that time of the year, at the end of September they were shifted to the span-roof house again kept at the same heat. In November and December they flowered most abundantly, some plants in 24-size pots bearing from twenty

to thirty trusses of bloom each, all of good size, form, and substance. They are blooming at present better than those struck last spring.

The varietics are as follows: *Pink*.—Mrs. Leavers, Lady Sheffield, Evening Star, Mrs. Lancaster, Master Christine, and Florence Durrant. *Scarlet*.—Vesuvius, Sir John Moore, Mrs. Whitley, Colonel Seeley, Livingstone, David Thompson and Dr. Karl Koch. *Salmons*.—Pioneer, Marmion, Leopard, and Fairest of the Fair. *White*.—Madame Vaucher. *Purplish*.—Caxton and Mrs. A. Rogers. *Crimson Tinted with Orange*.—Dr. John Denny. *White with Pink centre*.—Miss Gladstone.—C. H. STEPHENS, *Lyne, Sussex*.

DEATH OF COUNT KERCHOVE DE DENTERGHEM.

To those who during the past thirty years have visited the great horticultural gatherings in Belgium, and especially in Ghent, the name and presence of Count Kerchove must be familiar. Ever since 1848 he was a member of the Royal Society of Agriculture and Botany of Ghent. In 1859 he became Honorary President, and in 1875 President of the Society. The services he rendered to Belgian horticulture were not merely of an honorary and patronising character, for the Count was himself an ardent and intelligent horticulturist, and the ample means with which he was endowed was liberally expended in promoting the pursuit he so much loved. The Winter Garden erected by Count Kerchove in his town garden at Ghent is an evidence of his devotion to horticulture and a monument of his good taste and enterprise. This immense building is 164 feet long, 68 feet wide, and 42 feet high, and it contains upwards of 2100 square yards of glass. It is a right princely structure, and is filled internally with rock-work arranged in a perfectly natural and picturesque style, with cascades and pools of water, all planted with Palms, Ferns and other conservatory plants.

Count Kerchove was Burgomaster of Ghent and representative of the town in the Belgian Parliament. He was a man of great good sense; kind yet decided as a magistrate, and sincere and hospitable as a friend. His loss will be severely felt in Ghent, where he was born in 1819, and where he died on the 21st ult. He leaves behind a successor in the person of his eldest son, Count Oswald Kerchove de Denterghem, who is even a more ardent horticulturist than his father.



A CORRESPONDENT, "D.," asks if any of our readers can state "where the small hampers or baskets for sending flowers by post can be obtained?" We shall be glad to hear from those who can answer this question.

— "We send you one bloom of the SWANLEY WHITE VIOLET, this must be the best of all whites." So writes Mr. Cannell, and the flower we received is certainly the finest of its kind we have seen. It was exactly 1½ inch in diameter, and contained forty petals, imbricated, and constituting a neat and well-formed flower.

— IN the article by "D., Deal," in the last issue of the Journal, page 178, "the dozen of amateur growers" should be the "dozen"—i.e., the oldest.

— A CORRESPONDENT writes:—"I should like to point out a slight mistake made by Mr. Taylor a week or two ago when alluding to the value of PETROLEUM OIL AS AN INSECTICIDE. He mentioned an ordinary wineglass as holding *one* ounce; it has a capacity of about *two* ounces. I find an ordinary eight-ounce doctor's bottle a very useful measure. These are now very generally graduated into eight or sixteen divisions, representing ounces or half ounces."

— WE learn that a young gardener at Kew, MR. PHILIP MACMAHON, has been appointed to the CURATORSHIP OF THE HULL BOTANIC GARDEN on the recommendation of Mr. J. Smith.

We understand he has had experience in several good gardens, having served in Lord Ardilaun's garden, Ashford House, Galway; Lord Denbigh's, Newnham Paddox, and several others; and he will thus bring some good practical knowledge to bear upon the improvement of the Hull Garden.

— "F. W. B." writes—"CLEMATIS CALYCINA is now lovely, its greenish-yellow bells dangling like Lilies from its graceful twining stems. It is a real winter Clematis of great value, its flowers being chaste in form, distinct and pleasing in colour, and lasting long in water when cut."

— WE are informed that the CATERHAM HORTICULTURAL AND COTTAGE GARDEN SOCIETY will hold their annual exhibition on July 26th, when prizes will be offered in seventy classes for plants; cut flowers, fruit, and vegetables about equally divided between gardeners and amateurs and cottagers. The prizes are not large, but their number (three being offered in nearly every class) compensates to some extent for this. The Secretary is Mr. A. Habbitts, Essendene Road, Caterham.

— IN the General Horticultural Company's Hammersmith Nursery we recently noticed a fine stock of the useful LILIUM LONGIFOLIUM advancing fast. They are grown in frames near a house originally devoted to Roses planted out, and their position appears to suit them very well. This fine Lily is much valued for decorative purposes, and the large quantity grown proves the extent of the demand. The ornamental-foliage section of Begonias is also largely represented by some of the best varieties in cultivation; while miscellaneous plants employed for decoration, such as Spiræas, Selaginellas, Palms, Roses, Hydrangeas, Azaleas, and others, are grown in thousands, and all appear in excellent condition under the charge of the Manager, Mr. Gray.

— WE have previously referred to the abundance of ACACIA FLOWERS IN COVENT GARDEN MARKET, especially noting the beautiful A. dealbata, which has been more plentiful this season than we have noticed before. The greater portion of the supply is obtained from the Paris markets, where the flowers are sent from the neighbourhood of Nice. Another form is now represented largely in the florists' shops—namely, Acacia longifolia magnifica, which has close spikes of bright yellow flowers and lanceolate leaves. These Acacias do not flower in a small state in England, and it is only in a few establishments where sufficient space can be afforded them that the flowers can be obtained in large quantities. In such houses as the temperate house at Kew, however, they succeed admirably, growing strongly and flowering profusely, and no large conservatory or winter garden should be without some examples of them.

— WE have received from Messrs. Hunt & Company of Birmingham what they describe as a sample of their new APHICIDE. We think they have made a slight mistake. We have received no "aphicide," but a handy appliance for distributing aphicide or insecticide in form of spray to plants attacked with insects. One end of the instrument is placed in a bottle of the solution to be used, and the other in the mouth of the operator, the insecticide being blown on the plants. It is a handy article for those having window plants, and for amateurs to use in their small greenhouses, as it answers its purpose of distributing spray satisfactorily.

— "R. P. B." writes—"As regards AMARYLLISES, Mr. Garret, Whittinghame Gardens, a week ago favoured me with a number of blooms from seedling plants. Two of them are very good indeed, the colours being rich and the petals broad. He informs me that the plants are grown in 5-inch pots, and many have two spikes with four, five, and six blooms on each. Evidently the system of growing these from seed is the right one, and under

such treatment the Amaryllis has doubtless a bright future before it yet."

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on the 15th inst., at 7 P.M., there will be an exhibition of anemometers and of such new instruments as have been invented and first constructed since the last Exhibition. During the evening the President, Mr. J. K. Laughton, M.A., F.R.A.S., will give an historical sketch of the different classes of anemometers, and will also describe such forms as are exhibited.

— GARDENING APPOINTMENTS.—Mr. Benjamin Strange, late gardener at The Abbey, Banwell, has been appointed gardener to R. C. Lopes, Esq., Sandridge Park, Melksham, Wilts. Mr. Frisby, who has been for many years head gardener to Henry Chaplin, Esq., M.P., Blankney, Lincolnshire, has retired on a substantial pension, and has been succeeded by Mr. William Davis, formerly at Trentham.

— MR. IGGULDEN writes—"Mr. Bailey, Fairlawn, Frome, annually buys a few of the newest sorts of Potatoes, but of recent introductions he is most favourably impressed with Suttons' Reading Hero. In his garden it proves heavy-cropping, disease-resisting, and last, but not least in Mr. Bailey's estimation, it is of excellent table quality. As these are qualities most of us like to meet with in a Potato, Mr. Bailey's impartial opinion deserves publicity. The same gentleman is a good authority on STRAWBERRY AND RASPBERRY CULTURE. He invariably secures heavy crops of fine fruit of the former from plantations formed with plants that have been fruited in pots. His gardener is not allowed to break up the surface of either the Strawberry or Raspberry quarters; but annually he mulehes heavily with good unexhausted stable manure, of which, fortunately, there is abundance. Others especially who, like Mr. Bailey, have a comparatively light soil to deal with, should follow this example, and profitable crops will invariably result."

— THE schedule of the ROYAL HORTICULTURAL SOCIETY'S IMPLEMENT EXHIBITION has been issued, accompanied with a plan of the space which will be devoted to it. The Show will be held from May 23rd to July 5th, thus including the chief events of the season—namely, the Great Summer Show, the Evening Fête, the Pelargonium Society's Show, and the National Rose Society's Exhibition. Silver and bronze medals will be awarded for the best articles exhibited in the following classes. Not less than one medal will be awarded where there are more than two exhibitors in a class, and not less than two medals if there be more than four. Class 1, Modes of Heating a Small Conservatory attached to a Dwelling; 2, Boilers Heating 500 feet of 4-inch Piping with or without Brickwork; 3, Hot-water Piping, Modes of Fixing and Fitting the Same, Valves; 4, Plant House, Vinery, or Orchard House, Span-roofed or Otherwise, not exceeding 50 feet in length; 5, Moveable Plant Pits or Frames; 6, Improvements in Glazing, Ventilation; 7, Decorations for Conservatories, Ornamental Flooring, Flower Stands, Vases; 8, Hand Mowers; 9, Horse-mowing Machines, to Cut not less than 30 inches. Note.—All Lawn Mowers entered for competition to be tried in the Gardens. Class 10, Wirework; 11, Garden Pottery, Edging Tiles; 12, Garden Seats, Chairs; 13, Garden Engines, Syringes; 14, Garden Tenting, Shading Materials; 15, Complete Set of Lawn Tennis Apparatus; 16, Miscellaneous Subjects not Included in any of the Classes; 17, Garden Cutlery; 18, Garden Tools, Spades, Rakes, Hoes, Barrows; 19, Meteorological Instruments; 20, Plant Guards and Supports, Flower Stakes, Labels. Certificates of merit will be awarded to any special novelty approved of by the Judges that may be entered and brought under their notice; and one or more gold medals will be awarded by the Council for the most meritorious general displays. An important

and instructive Exhibition may be confidently expected, which will add greatly to the attractions of the Society's Kensington Gardens during the approaching season.

PLANT LABELS.

MR. WOLLEY DOD on page 173 has exactly described the plant label we are in search of. I think with him that a year's trial will be required before the label can be accepted as successful. So far the trials with Messrs. Wolstenholme's boxwood labels which I have had steeped in paraffin (see page 136) continue to resist damp in the cool Orchid houses. My friends have paraffined me some more boxwood and some 1-foot deal labels. Probably one reason why deal resists damp to some extent is that the resin contained in it partly plays the part of the paraffin. Pitch pine should make the best of this class of label, but I believe it is rather hard to cut. Deal labels are perhaps the best to start with, but there is something very taking in the appearance of those made of box and holly. So far the paraffined labels promise well. I hope label makers will carry on the necessary experiments for perfecting them. It may be necessary for full saturation that the process could be carried in a vessel from which air, or most of it, has been excluded.—GEORGE F. WILSON.

THE RENOVATION OF OLD FRUIT TREES.

WHEN old fruit trees reach the stage of barrenness prompt measures should be resorted to for their renovation or destruction. Not lightly nor hastily should we decide what to do with them; for although planting for our heirs has become an obsolete term, yet bringing young trees into full bearing requires so many years of our lives, that all that is possible should be done for an old-established tree before it is replaced by a young one. It is reasonable to assume that before applying a remedy for barrenness its cause should be thoroughly understood, but I have ample reason for saying that it is a matter concerning which there is much ignorance—much hesitation.

Take, for example, an old espalier Pear tree with huge spurs projecting a foot or more from the branches, thickly studded with knotty protuberances, having numerous short abrupt angles and curves, and with hard and rugged bark, the annual wood growth stunted and weak, and bearing no fruit year after year. What shall we do with it? Its stem and branches bear no sign of actual decay outwardly, and if we sever a branch the wood has a clean white healthy appearance that is a striking contrast to its unwholesome-looking bark. The fault is clearly in the spurs where a sluggish action of the sap, induced by the many obstacles that have gradually arisen from a long course of hard pruning, leads to the familiar condition of inert barrenness. It has been advised, as a remedy, to gradually reduce the spurs, cutting off about 2 inches of the tips yearly, so that by confining the sap nearer to the base of the spur a new crop of fruit buds may be induced to grow there, and the old exhausted spur-wood eventually be removed. I must confess that my attempts at the renewal of such spurs in Pear trees have not been so successful as to warrant me in recommending the plan. I have rather found it answer best to cut off every branch to within a few inches of the main stem and graft them. The grafts invariably grow with much vigour, and become fruitful branches so quickly, that by the time the gradual reduction of old spurs can be safely effected they are bearing fruit abundantly. The grafting is of course done at this season of the year, and is as beneficial for Apples as for Pears.

In the treatment of old Plum trees I have found the process of spur-renovation described as for Pears to answer admirably with the addition of the occasional removal at once of any very old decrepit spurs. If the roots of a Plum tree are healthy the tree will frequently bear excellent fruit, even with its branches in a state of decay—not small or poor-flavoured fruit, but excellent in every respect. I have before told about some very old Green Gage trees with huge hollow stems which used to produce magnificent fruit, and I may also mention an Orleans tree in a very similar condition that was equally remarkable for the size and abundance of its fruit. It by no means follows, however, that the branches of a Plum tree are not to be cut. I have at various times cut off all the branches of unsightly trees to induce a new branch-growth, and have no decided failure to record.

Peaches and Nectarines bear hard pruning with impunity better than almost any other fruit trees. They may truly be said to be constantly renewing their youth. Depend upon it a full and timely use of the pruning knife has a very important influence upon the health and vigour of old as well as young Peach trees. There should be no half measures with weak growth; sweep it entirely away, and if the entire growth be weak and sluggish cut

down the tree to about 2 feet of the bottom of the branches, and if the roots are healthy you will be rewarded by new growth of much vigour.

Trust not, however, entirely to the pruning knife, but look also closely to the condition of the soil, and carefully enrich it if it is at all exhausted. It is well to have a heap of suitable soil always in reserve for this purpose. It may consist of any rich decayed garden refuse, with a moderate proportion of coal ashes, lime and mortar rubbish, especially where soil is known to be deficient in lime, and wood ashes which contain the fertilising potash of which soil is usually deficient.

Look also to the drainage of the soil. Old drains become choked and cease to act from a variety of causes, and a tree cannot continue healthy or fruitful in a water-logged soil. Apart from the health of the roots there is another vital reason why the soil of orchards and fruit gardens should be drained, which is that the comparatively dry soil is warmer, frosts are less prevalent, less severe near it, consequently there is less danger of the blossom suffering from cold, for the gain of a single degree of heat may save the crop.—EDWARD LUCKHURST.

INCREASING PHLOXES.

THESE are my favourite hardy flowers, and as the demand for them is rapidly extending, the present is a good time to call attention to their propagation. This is easily effected, the best way of increasing the stock being division of the plants. About this time last year I planted a hundred of the best varieties. At that time they were in 3-inch pots, and had a small root and single stem each. The soil and position being good, they produced some wonderful stems last year, and the heads of bloom were much finer than when seen on old stools with a dozen or more spikes each. Those plants are now producing from four to a dozen strong growths; and as we wish to increase all of them, two small plants will be taken from each, and they will come as fine as the others were last year. The soil is removed a little from the roots, and the fresh plants are cut away with a knife. A good root is secured with each, and when planted at once they never appear to feel the change. This is much the easiest and surest way of increasing Phloxes, but only good varieties should be divided and replanted. Indeed only such should now be grown, as there is abundance of them, and they are vastly superior to the old indistinct-coloured small-flowered sorts.—M. M.

BROMELIADS.

THE Pine Apple family includes a large number of plants, chiefly natives of Brazil and the West Indian islands, many being epiphytes, and are found growing in company with Orchids and similar other things. There are many curious and pretty species among the epiphytal forms, and of which the Tillandsias are perhaps the most conspicuous. Some of the Tillandsias that are found growing on trees are exceedingly pretty when not in bloom, owing to the beautiful silvery colour of their foliage. The flowers also are showy—purple, white, and red being the most prominent colours. There are two or three of the dwarfest species of Tillandsia that are found growing on trees which are particularly worthy of note. For instance, *T. usneoides*, or as it is locally known by the name of "The Old Man's Beard," is one of the most peculiar plants. It is curious in several ways, one of which is its strange mode of growth, for instead of growing towards the light it grows the reverse way, and spirally. It seems to make no roots. It only requires to be secured to a piece of wood and suspended from the roof of the house, and above all it requires no water, excepting the moisture from a warm stove atmosphere. The shoots grow to a length of 18 inches or 2 feet, and flowers are rarely produced by plants in cultivation. *T. Gardneri* is another pretty plant. It grows admirably fastened to a piece of wood and suspended from the roof. Its beautiful silvery foliage and bright purple flowers combined render it very attractive.

At one time Bromeliaceous plants were grown more extensively than they have been lately, and *Æchmea fulgens* was a favourite with all, but even this old plant has fallen into disrepute. I am glad to see they are again coming into notice, for several of our leading nurserymen have commenced growing them rather extensively. The old system of growing them must eventually be superseded, for it is a mistake to keep the crowns dry, neither do they require to be kept so dry at the roots as many may suppose.

Amongst the Bromeliads that are of the most horticultural value, some of the larger-growing Tillandsias are undoubtedly the leading plants. The most showy of all, *T. Lindenii*, stands pre-eminent. Its value is well known, and it should find a place

in all collections of stove plants. *T. Saundersii* is a very compact-growing plant, slightly glaucous on the upper surface, and spotted with light brown on the under side. This is a plant suitable for a small vase. *T. tessellata* is perhaps one of the finest marked of the genus, and has a very pleasing effect by gaslight. The groundwork of the young leaves as they appear are of a greenish yellow colour, finely marked with a darker green. As they become older the dark green is the most prominent. *T. splendens* is a useful kind both in foliage and flower, and should be grown in quantity. One good quality is that the leaves are not nearly so crisp as many of the other species, making it a desirable decorative plant. *T. Malzinei* is another useful kind. The upper surface of the leaves are light green, the under surface of which are marked with a light brown. *T. mosaica* is rather scarce at present. When it becomes better known it will no doubt find a place in every collection. The leaves are very handsome, and the robust habit of the plant makes it a desirable acquisition.

Pitcairniae are very useful plants for furnishing purposes. They stand well in rooms, and are well adapted for using amongst other plants of a bolder character. *P. flammea* is a strong-growing species and easily cultivated; the long, narrow, silvery, arching leaves and branched flower spikes, which are of a fiery-red colour, are characters sufficient to recommend it. *P. bromeliæfolia* and *P. Decaisnei* are closely related to the last species, the flowers of which are very showy, and remain in perfection for a long time. *Æchmeas* are well worth cultivating, for when in flower they are extremely showy. Such species as *Æ. fulgens*, *Æ. Wielbachi*, and *Æ. fasciata* are by no means to be despised. The genus *Vriesia* is represented by two or three species that are of dwarf growth. *V. brachystachys*, *V. psittacina*, and *V. speciosa* are remarkable for the brilliant colours displayed in their flowers. Very handsome specimens can be made by plunging three or four plants together when in flower in a pan with moss. By so doing their flowers are shown off to the best advantage. There are several other genera that could be mentioned of less importance, such as the *Nidulariums*, *Catopsis*, *Melionia*, and *Cryptanthus*. I have not alluded to the *Bilbergias* in this paper; for although some of the species are really very handsome when in flower, and *B. zebrina* especially so in flower and foliage, the sharp spines which arm the leaves, the long thin habit of some of the species, are considerations which are not in their favour from a horticultural point of view.—W. K.

GARDENING IN MOIST DISTRICTS.

I HAVE lately come to reside in a hilly part of Pembrokeshire, at no great distance from the seacoast. Great has been my disappointment to find that I cannot bloom many favourite flowers which used to do well with me in Somersetshire. The hill mists constantly descend upon my gardens, and my Roses, Petunias, and Geraniums are failures. The two last damp off before the flowers are fully out, and the greater number of my standard Roses have perished. The dampness of the atmosphere even affects plants in the houses. I have tried in vain to flower *Maréchal Niel* Rose under glass, the young shoots become mildewed as soon as they are formed. Pansies and Violas, which I had hitherto considered would do well in a damp situation, have also failed. I should be glad to have advice from any lover of flowers who has had experience of such a climate, and to hear what plants it would be best to cultivate in order to have the garden bright with flowers. The yellow *Calceolaria* is the only plant which has succeeded with me.—M. A. M.

[We shall be glad to hear from those of our readers who have had experience under the conditions indicated, so as to aid our correspondent and others similarly situated to render their gardens satisfactory. It would have been well if the nature of the soil had been stated. We have been informed that *Mignonette* will not grow in the gardens at Drumlanrig, presumably on account of excessive moisture, but Violas are brilliant there and in other moist districts in Scotland.]

SHRUBBY SPIRÆAS.

It would be difficult to select a genus of shrubby plants which would contribute more to enhance the beauty of shrubberies and lawns than that of *Spiræa*. It embraces an extensive group of woody plants, some of which, in the beauty of their inflorescence, vie with the well-known herbaceous *Spiræa palmata*. They are generally of neat habit, and some of the species are very dwarf. One of the best of the latter is *S. cana*, which has small hoary leaves and lateral racemes of small white flowers, which impart to it a most striking and graceful appearance. Indeed, it must rank as one of the best amongst the small-leaved forms. It is as

floriferous as *Berberis Darwinii*, and the flowers are disposed in a similar manner.

The woody *Spiræas* do not seem to have gained the attention they deserve. Shrubbery borders do not, as a rule, include sufficient diversity of plants. In small gardens certainly it would be no easy task to display a great variety of shrubs if effect is to be gained, but extensive borders might be greatly improved by employing more distinct species and varieties.

The old *Spiræa opulifolia* grows well in the neighbourhood of Manchester. When in bloom it is very attractive. The flowers are small and white and borne in loose pyramidal panicles. Some other good forms are the following—*S. Nobleana*, a hand-

some shrub from California. *S. callosa* from Japan is a near ally, and both have beautiful spreading cymes of flowers. *S. Douglasii* is a well-known species with flowers in erect contracted panicles. *S. bella* and *bella coccinea* are good, but the latter is perhaps rare. The above five have reddish or pink flowers. The following are all white-flowered, and with the exception of *S. opulifolia* and *S. eantonensis* have small foliage, which blends well with their innumerable clusters of small flowers. *S. trilobata*, from the Altai mountains, is a remarkably fine species. *S. prunifolia* fl.-pleno is good and perhaps better known; and *S. eana*, a native of Dalmatia. The two following, namely—*S. Thunbergii*, Japan, and *S. decumbens*, a native of Siberia, are best adapted for banks



Fig. 40.—*ONCIDIUM CUCULLATUM* VAR. *ATRO-PURPUREUM*.

or for rockwork on account of their dwarf habit.—T. ENTWISTLE, *Didsbury*.

ONCIDIUM CUCULLATUM ATRO-PURPUREUM.

AMONGST a little batch of imported plants of this species we have had considerable variation in form and colouring. That now figured is one of the best, both perianth segments and labelum being very highly coloured. Quite a small plant bore an eight-flowered spike, and the flowers endured in beauty for nearly three months from the time the first flower opened. The sepals and petals are of a dark purplish brown colour shaded with olive. The elegantly crisped lip is soft lilac blotched and spotted with dark violet purple, as shown in our sketch. As a neat-habited plant which grows freely in a cool house, flowers freely, and endures a long time in beauty, it is well worth careful culture. We find that the cool moist treatment in which *Odontoglossum Rossii majus* luxuriates suits this plant also. Another fine variety of this type is *O. Phalænopsis*, in which the lip is white with a lemon spot at its base. Both are well worth careful culture, and are especially valuable as cut flowers for the reasons above specified. We grow them singly in very small pots half filled with

small crocks for the sake of efficient drainage. The compost is tough peat fibre and sphagnum in the proportion of two of the fibre to one of the moss, and to this is added finely broken crocks and small nodules of charcoal. I have quite given up the use of sand in Orchid-growing, preferring in its stead crocks finely broken, or even coarse sandstone grit from the wash of a hillside roadway. That this species blooms all through the autumn, winter, and spring months, if grown in quantity, is an additional recommendation, and it has a very agreeable and delicate perfume.—D.

AN ISLEWORTH MARKET GARDEN.

FEBRUARY is far from being the best month to choose for a visit to market gardens generally, particularly those where the production of fruit constitutes the chief portion of the business, as is the case on the extensive grounds owned by Mr. W. Warren at Isleworth. Yet there, as in other establishments of a similar character, plants receive some considerable attention, and in that department the care and judgment manifested in the entire management are producing similar creditable results. It is, however, well known that the proprietor's fame as a cultivator is largely due to his success with outdoor fruits and vegetables, the growth of indoor plants at present occupying a subsidiary position in importance. Some of these are, however, so well grown that they demand a few words of notice.

At this time of year the most attractive feature is *Cyclamens*, a large number of healthy vigorous plants bearing a profusion of flowers producing a gay effect in several houses, while abundance of most promising young plants indicate the provision made to meet the demand of next season. One long frameful of the latter was particularly noteworthy, the plants being plunged in coal ashes a few inches from the glass, the bed sloping parallel to the lights. A pipe along the front of the frame affords sufficient heat even in adverse weather, and that the plants appreciate their position is well shown by their healthy appearance. By thus plunging the plants a more equable degree of moisture can be preserved in the soil—one of the essential requirements of young *Cyclamens*—and they are still further aided by occasional light syringings. Great care has been paid by Mr. Warren and his son to improving their strain, and substantial progress has already

been made in that direction. They have some of the finest and clearest whites I have seen. The flowers differ considerably in size and form. Some have exquisitely neat blooms admirably adapted for button-holes or bouquets, with petals of moderate length, but very broad and rounded of great substance, and compactly arranged in the flower. Others of the giganteum type are extremely large and very showy, but all are alike good. Bright shades of crimson are also represented, several being remarkably rich. One very distinct and delicate rose-tinted seedling is worthy of careful preservation, for it is one that would be highly valuable for bouquetists, the shade of colour being very soft and quite different from any other known to me.

Mignonette is grown in thousands, and the condition of the stock at the present time is as satisfactory as could be desired. The plants are grown in lean-to frames facing the south, the pots being arranged on a cool moist base of ashes. The seed is sown in 48-size pots, and if the seedlings appear too thickly they are thinned out sufficiently to ensure a compact, full, but not crowded specimen, when lightly tied in for market. The plants have made fine sturdy growth, and are showing flowers abundantly.

Pelargoniums of the decorative and Ivy-leaf types occupy very large lean-to houses, and are in excellent health. The decorative and show varieties are as solid, firm and clean as any I have seen this season, the bright green hue of the foliage and its almost leathery texture indicating how well it has been matured and the quality of the flowers that may be expected. The Ivy-leaved varieties were similarly fine, indeed a better lot could scarcely be desired. In both houses the plants were arranged on a sloping stage very close to the glass, and it is this full exposure to light and air that has undoubtedly contributed to their success. Winter-flowering Carnations such as La Belle, Callas, and other useful plants are grown in moderate quantities, and the last named were still bearing a number of large pure white spathes, which are in much demand in the market early in the season. The plants are grown in pots and liberally treated as regards the supply of liquid manure, and they are found to produce quite as satisfactory results as if planted out.

The extensive and admirably cultivated fruit garden, every portion of which is cropped to the best advantage, calls for little comment at this time of year. It may, however, be remarked as an example of the way in which land is utilised under good market garden culture, that about thirteen acres have been recently added and planted with young Apple and Plum trees 12 feet apart each way. Between these are rows of Gooseberry bushes, and again between the rows of Gooseberries and Apples Strawberries will be planted in lines. The varieties of Apples are Early Julien and Lord Suffield on the Crab stock. The Plums are Gisborne's and Victoria. The Gooseberries are all Lancashire Lad; and the varieties of Strawberries selected are Sir Joseph Paxton, Sir Chas. Napier, and President. The planting of a few varieties only is significant, as in too many establishments the chief object appears to be including as large a number as possible, but when the market supply is counted, not by bushels, but by tons, this system is found extremely unsatisfactory. When the land was duly prepared for planting, but before this was commenced, the whole was drilled with Onions, so that there is little space lost. The soil is fairly good, and some highly satisfactory results are expected in a few years.

It should be also added that Mr. W. Warren is a practical and scientific bee-keeper, and his opinion on the subject is worth the consideration of gardeners and fruit-tree growers. He considers that the large crops of fruit he has obtained, even when his neighbours have been complaining of scarcity, have been chiefly due to the influence of the bees in distributing the pollen. In this respect he considers bees return a handsome profit for the attention and care they need. It is worthy of note that the well-known Keens' Seedling Strawberry was raised in these grounds by Mr. Michael Keens, Mr. W. Warren's maternal grandfather, about the year 1810.

In concluding these brief notes a word of thanks is due to Mr. Warren for his courteous attention and willingness to give particulars of his cultivation, especially as it is seldom that market growers are ready to impart the results of their experience to others.—L. C.

AMARYLLISES AT CHELSEA.

A FEW of the chief of the new hybrid Amaryllises in Messrs. Veitch & Sons' Chelsea Nurseries were noted last week (page 176), but there are many others of equal merit to those mentioned; and as some of these are more advanced now, their distinctive characters being better developed, they merit a brief additional comment. One very striking feature is the vigour of even young

bulbs, many only two years old bearing strong scapes of handsome flowers, while those three and four years old have in several cases two scapes with from four to six flowers each. In some instances this vigorous floriferousness is characteristic of the variety; but in others, Mr. Heal, Messrs. Veitch's foreman, considers it is chiefly due to the strength of the bulb as ensured by a judicious and liberal method of culture. The house they now occupy is constructed so that the plants enjoy free exposure to light, and this not only matures the bulbs but assists materially in intensifying the colours of the flowers.

Among the numerous forms represented, the following are especially deserving of notice—Miss Alice Gair, a particularly handsome variety with very large, well formed, extremely bright scarlet flowers 8 or 9 inches in diameter, and borne four or five on a scape. In the brilliancy of the scarlet shade this is scarcely surpassed. Mr. H. Little, flower massive, 8 or 9 inches in diameter; petals 3 inches in diameter, finely rounded, of a rich distinct shade of crimson, with darker veins and a few white streaks. Abraham Lincoln, another variety with flowers of excellent form, crimson scarlet, with a white centre and streaked with white. The scapes bear four flowers each, and the plant has a noble appearance entitling it to rank amongst the best. Royal Standard, a superb form with fine broad rounded crimson petals tipped with white. Empress of India is one of the most vigorous and floriferous of all. One plant has two scapes each, with four massive scarlet flowers with white stripe and centre. The scapes are tall, and the large brilliantly coloured flowers give the plant a most imposing appearance. Thalia, which has a peculiar combination of scarlet and crimson in the flowers, is now well known, having been certificated some time ago. It is very effective and beautiful.

Of the hybrids with smaller but not less pleasing flowers the following are noteworthy. Maid, a very neat and pretty form, having flowers of moderate size streaked with reddish crimson on a pure white ground. Flammetta, light bright scarlet; chiefly notable for the fact that the colour extends to the centre of the flower, in which respect Temeraire is similar, though of a distinct shade of scarlet. Alexandria has crimson flowers with a few white streaks; very attractive. Alphonse Karr and Dr. Sarphati have fine crimson-veined flowers with white stripes, the latter variety being very free. Constance is white and crimson veined and streaked; attractive. Signor Foli, a handsome form, with rich crimson flowers tipped with white. Grand Sultan, very floriferous, having four deep crimson and white-striped flowers in a scape; and Reine des Roses has neat flowers marked with a peculiar crimson shade.

These are only a few of the best. Many are equally as good as these, and, judging by the careful crossing now being attended to, some even more satisfactory results may be expected. It may be well to note that the remarkable hybrid between Amaryllis reticulata and one of the scarlet-flowered forms, which is named Autumn Beauty and was certificated some months ago, is to be shortly sent out. It will be remembered that, as we have previously stated, a scarlet Amaryllis was made the seed-bearing parent; yet, strangely enough, the foliage precisely resembles A. reticulata, the flowers being intermediate in characters.

DOINGS AT BURGHLEY.

"COME and have some Chou de Burghley," was the most pointed sentence in a letter lately received from Mr. Gilbert; as this was during the London fogs the invitation was irresistible, and I went.

A great deal might be said historically about the grand old place, and much might be written on the picturesqueness of the park, the splendid Lime avenues rivalling the royal Elms at Windsor, and the pleasant walks in the pleasure grounds half encircled by the lake. But all these must be passed, as the great kitchen gardens demand primary notice, and too little space is at disposal for recording the doings therein.

Regarding these kitchen gardens in all aspects—site, soil, arrangement and cropping—they must certainly rank very high, perhaps even as the best in the country. At Longleat Mr. Taylor has some reason for thinking the worst possible site had been selected for vegetable and fruit growing; at Burghley, on the contrary, the best position appears to have been chosen for these purposes. As both these famous aristocratic seats were, as regards the parks and gardens, formed under the direction of the celebrated "Capability" Brown, it is a little singular there should be such a marked difference in the departments in question. They are alike in one respect, both being a mile from the mansions, and there the similarity ends. At Longleat the four or five acres are about as unlevel as the back of a dromedary,

and the soil naturally unfertile; at Burghley the fourteen acres are almost as level as a lake, and the soil excellent.

This large space is enclosed with walls and intersected by other walls, forming six separate enclosures, and quite round the whole block is a sunk fence 10 feet deep, thus affording ample facilities for drainage. Much land outside the walls is also devoted to fruit and vegetable culture, there being altogether about twenty-eight acres under cropping, and every yard is cultivated and every corner occupied; even the bank of stones, the result of excavating the sunk fence, on the south side at least, and which has lain unutilised for more than a hundred years, is now turned to account. A district in Kent is noted for its stones and its Cherry trees; and Mr. Gilbert, always wide awake, thought as Cherries grew so well among stones there, they would also grow among stones at Burghley. Trees were accordingly planted, and for firm clean growth and fruitfulness they could not be well surpassed. This experience of growing Cherry trees in stone heaps may possibly be of service to someone, and hence it is recorded.

There is no waste of walks in these gardens, but all the ground possible is turned to account. A wide gravel Box-edged walk is formed quite round the general enclosure at about 25 feet from the walls, and a broad road for carts is formed through the centre from east to west. This road is not edged, so manure can be readily conveyed to the land. On the opposite side of the chief gravel walk are borders about 6 feet wide containing bush fruit trees, and at the back of these borders paths for workmen and wheelbarrows. There are no walks running parallel with the intersecting walls. Vegetables are not grown close up to the walls, but a portion is left about 5 feet wide. This does not appear to be dug, but is firm, and mulched with manure over some at least of the roots of the wall trees. Across most of the principal quarters is a row of fruit trees, with a few rows of Currant bushes, under which the ground is not dug either, but covered with manure. So much for the general character of this excellent and excellently arranged garden; and now, briefly, to some of its contents.

FRUIT TREES AND BUSHES.

Most of the wall trees are old, several Peaches on the south walls being exceptions. An example of good old-fashioned training is seen here, the branches being straight as gun rods, and the lower branches stronger than those in the centre. This is the secret of furnishing a wall effectively. These trees are very fruitful, but the blossoms are this year too advanced. A wall of Apricots is similarly well furnished, thin nets being placed over the trees for retarding the blossom, which will shortly be expanding. Mr. Gilbert has a remedy for preventing the branches of Moorpark Apricots dying, which is new to me, though it may not be new to all. He says only seedling trees should be raised and planted, and that this fine variety comes true from seed. This is the newest notion I picked up at Burghley. Fig trees are numerous, receive little pruning, bear abundantly, and, as a rule, the fruit ripens well. Pears are largely grown, but only one need be mentioned, and this as an example of renovating. It is an old tree with large horizontal branches. All these were cut off but the bottom pair, the middle pair, and a pair about 18 inches from the top of the wall. The spurs being cut from these, new growths pushed freely, one of which was retained at intervals of a foot; at the base of these, buds of a superior variety were inserted in the summer, and soon the wall will be covered with valuable fruit. These new growths are trained vertically and now cover the wall, and as these from the lower pair of branches extend, the others above them will probably be removed. This is a simple, quick and good system of renovating a wall tree.

Pyramid and bush trees are not closely pruned. The branches are thinned out, not shortened, and when there is space, as there mostly is upwards, this is the plan that will yield the most fruit with the least expenditure of labour. Severely shortening the shoots of fruit trees in winter and letting the roots extend is one of the greatest fallacies in gardening, and one of the chief causes of fruitless trees.

Raspberries are trained rather differently from the usual practice. The stools are 4 or 5 feet apart, and the stakes driven in line exactly between them, the canes from each side being bent over and their points secured to the stakes. The young growths then spring up unimpeded and exposed to the full light and air. This is a very old, almost forgotten, yet good method of training that is worthy of mention.

Old Black Currant bushes are made young again in a simple manner. A certain number when old are cut down yearly nearly to the ground. They push strong growths, and in a year or two bear splendid fruit instead of inferior produce. Some bushes that at a glance appear four or five years old are perhaps five times that age, perhaps more. If the ground is not dug but dressed with manure and soil annually, Black Currant bushes may be kept profitable for generations, as they bear cutting down about as well as Willows, and, like Willows, afterwards grow vigorously.

A NEW ORCHARD.

An orchard of several acres has been planted on a very sensible plan that will meet the approval of "WILTSHIRE RECTOR." With nearly everything that the Rector writes on fruit trees I cordially agree, and so does Mr. Gilbert. Thousands of fruit trees have been planted during the last twenty-five years in this country, yet there is room for ten times more American Apples in our markets now than

there was a generation ago. Why is this? There are two cardinal causes—1, Planting one tree of a kind of a multitudinous number of varieties; 2, Indulging in pruning unsound in principle and amounting to mere mutilation. The plan adopted at Burghley has been to select the varieties that *succeed well in that locality*, and to plant at least a dozen trees of each—standards, at a little more than 30 feet apart, cultivating and cropping the ground amongst them.

The following are the varieties, only one of which is doubtful, the Ribston Pippin, which could not be excluded; all the others invariably grow healthily and bear freely in the district.

Apples.—Peasgood's Nonsuch, Cox's Orange Pippin, Worcester Pearmain, Mère de Ménage, Claygate Pearmain, King of the Pippins (Golden Winter Pearmain), Stone's Apple or Loddington, Golden Noble, Barnack Beauty, a valuable local variety, Wellington (Dumelow's Seedling), Reinette du Canada, Warner's King, Dutch Mignonne, London Pippin, Lord Suffield, Winter Hawthornden, and Lord Grosvenor. *Plums*.—Victoria and Prince of Wales. *Cherry*.—Kentish Prolific Morello.

Each tree is supported with three stakes driven slantingly into the ground 18 inches from the stem, the tops meeting in a bundle of hay just under the head of each tree. The shoots were shortened the season of planting, and little subsequent pruning will be needed. When these trees are in full bearing, instead of a peck or a bushel of a sort being gathered, as is the case under the one-pigmy-tree-of-a-kind system, there will be tons of fruit for marketing, and it is surely as well to produce these within a hundred miles of London and Manchester as to have them grown at a distance of upwards of three thousand miles. On the question of fruit-growing for the million we may well pause and wonder what the Americans think of us.

VEGETABLE-GROWING.

Vegetable-growing at Burghley is conducted on the London market garden system, and there is no better method. If young gardeners were to endeavour to make themselves acquainted with a profitable system of vegetable and hardy fruit culture, they would find the knowledge of greater value than any amount of skill in striking Pelargoniums and pricking out Lobelias. "Value for money" is becoming the order of the day, and Mr. Gilbert is able to show that the value of the garden produce equals the expenditure. It would be impossible to do this everywhere. There are numbers of places where even a Gilbert could not do it, and to accomplish it at Burghley is something to be proud of. "But where is the proof of this achievement?" some may ask. If they reflect a moment they will perceive that if it were not true Mr. Gilbert dare not have this statement published. But the next question will be, "How are the values of the products arrived at?" They are founded on Covent Garden prices, and when two prices are quoted for an article the average between them is adopted, which is quite fair, and the whole procedure is just embodied in a method of good culture and good book-keeping.

LAND PREPARATION.

Economy in this and sound judgment in cropping constitute the very root of success. When a piece of ground is trenched, twice or thrice the quantity of manure is applied that is usual in ordinary practice, and this supports three or four crops with scarcely any further expenditure than sowing, planting, and hoeing. The routine of trenching is also conducted on what is found to be the cheapest system. It is this: The manure on the ground, one man takes out the trench and makes everything ready, then a strong force is put on first thing in the morning, beginning on Monday morning if possible. The work then goes with a freshness and spring that makes itself felt. But this only lasts for three or four hours, then the men are divided and sent to different work that equally wants doing for the rest of the day. This change amounts to a rest, and at the same time the work progresses quickly. This is the way to get the most work done in the shortest time, and in the easiest and most agreeable manner to the men. "SINGLE-HANDED" wrote forcibly on this principle of working some time ago, and clearly showed its advantages. But space diminishes, and a few of the crops and varieties must be as shortly as possible alluded to, as they are not badly selected at Burghley.

POTATOES.

Several varieties have been on trial, but the following are regarded as the most serviceable. Selected Myatt's Prolific, the best first early; Beauty of Hebron, prolific and useful; Uxbridge Kidney, a second early of splendid quality; Schoolmaster, productive and much liked; and Paterson's Victoria, a variety of well-known excellence. These are arranged in the order of ripening, and as yielding produce of the best quality all the year round. Uxbridge Kidney is the most esteemed of all; when cooked it is white and floury, yet is agreeably melting in texture, and in flavour equals the old Lapstone if it does not surpass it, continuing good throughout the winter. Of the other new varieties Holborn Favourite is held in high repute. Mr. Gilbert says he has only recently found out the right way of growing good Potatoes for exhibition, and I will leave him to state his method if he has no objection to do so.

BROCCOLIS AND CABBAGES.

Besides extensive squares of these, single rows are seen along the back edge of the wall borders. But for this "dodge" there would have been no heads during the past two years, all the plants in the

open quarters having been killed. The following are the standard successional varieties—Snow's Winter White (true), Hoskins' White, Leamington, Watts' Broccoli, Cattell's Eclipse, and Burghley Champion. From these heads are cut during seven months of the year. Of Cabbages, the two varieties relied on are Barr's Criterion and the true Nonpareil; the first sowing is made on July 25th, and early, hence valuable crops are produced.

CHOU DE BURGHELEY.

This is the celebrated Cabbage Broccoli, and the pride of the garden. A very large quarter is now in full profit—that is, for culinary purposes, but seed-growing is the main object. On the assumption that every grower of vegetables will want a packet of seed when the stock is placed in the market a large bulk is being raised. This vegetable will presumably be distributed next year, and will be submitted with testimonials which for weight and numbers have never been accorded to any other product of the kitchen garden. As one more or less can make no difference, and as some readers may like to know somewhat of the appearance and quality of the vegetable at home, here is the record. In appearance the plantation now (February) resembles a square of Cabbages in June—that is, of dwarf matured plants with well-developed hearts. But there is yet a marked difference—the plants are decidedly lighter in colour than Cabbages, and the hearts, though well formed are not hard, while each contains its kernel, a diminutive Broccoli head. I have seen, grown, and tasted what might be termed "Cabbage Broccolis" before that have come by chance amongst the Broccolis proper, and I have seen some grown by Mr. Iggulden. But the Burghley type is different and superior, also unquestionably "fixed." It possesses more of the Cabbage character than any others I have seen, the inner leaves of which have had the distinct Broccoli twist, which is almost or quite absent in the case of the "Chou de Burghley." So much for appearance, and what of the quality? Three words will express it, according to each their full meaning—distinct, delicate, and delicious. It only remains to be said that by the severity of last winter all the vegetables in the open quarters were killed except this and Brussels Sprouts; thus we arrive at a combination of good qualities which the raiser is warranted in condensing into one expressive word, and as if this were not strong enough he repeats it with emphasis in his verdict as follows—"The Cabbage Broccoli is a *topper*, sir, a *TOPPER*."

PEAS AND CELERY.

William I. and Sangster's are still considered the best of the first earlies; both are sown, and if the former happens to fail the latter is in reserve. As a main-crop Pea The Standard is esteemed the best of all, a great cropper, and continuing in use longer than any other. The fine variety Marvel is much liked. Omega is esteemed the most satisfactory of all for late use, and John Bull is valued for its good quality and fine pods. Such is Mr. Gilbert's estimate of Peas, but he says if limited to one variety only he should choose Laxton's Standard. As to Celery one line will suffice—the best and most profitable this year is Carter's Champion.

MUSHROOMS.

In a strip of ground perhaps a hundred yards long and twenty wide, bounded by a wall on the north and a hedge on the south, are a few old Apple trees. In most places Pea sticks would be piled round the trees with rubbish heaps around them, and possibly a fringe of Nettles. That is how out-of-the-way corners are not uncommonly occupied. But here this model refuse corner is the most profitable plot in the garden. No other crops equal in value the crops grown here. All along the wall is the lean-to bed, and across the strip ten other ridge-formed beds. As thickly covered with straw they resemble Potato piles, but remove the straw and there are such crops and such Mushrooms as cannot be equalled in the excellent house devoted to them, good as the beds are there. The simplest and best of all systems of Mushroom culture is the method of growing them outdoors. Good beds bear all through the winter abundantly, and they ought to be and might be increased a thousandfold and more; but as not one in a thousand is acquainted with a practice with which I happen to be familiar, I will in some future numbers endeavour to tell all about it, and to show that there is even less reason why France should supply English markets with Mushrooms than that America should supply them with Apples. Mr. Gilbert laughs at the French Mushrooms, and well he may with such an abundance of his far superior specimens, and there is no reason why others should not make themselves competent in the same method. Assuredly the outdoor Mushroom-growing at Burghley must be included among the most meritorious of the many good "doings" there, and demands a word of high commendation.

Altogether these fine gardens are in splendid condition—well planned, well managed, neat, orderly, and enjoyable; and the glass department, which cannot be noticed now, is in the highest degree creditable to Mr. Gilbert and his skilled and attentive foreman, Mr. Divers, whom it is pleasant to perceive enjoys, as he deserves, the respect and confidence of his experienced chief.—J. WRIGHT.

PELARGONIUM RUBIS.—I have tried many and seen many varieties recommended for winter flowering, but find none to flower so well amongst the doubles as the above. In a moderate heat of 45° to 50° there are several that will flower up to Christmas, then they stop for

a time or the flowers fail to open; but the blooms of the above always open well. They are of neat size for button holes, the colour being deep claret. All should have a stock of the plant.—W. HARKER, *Epsom*.

REVIEW OF BOOK.

The Herefordshire Pomona. Edited for the Woolhope Club by ROBERT HOGG, LL.D., F.L.S., &c. Part IV.

CHRISTMAS comes but once a year, and so does a new part of the "Herefordshire Pomona," both equally welcome, at least to fruit-loving minds. The three previous parts are more suitable for national readers: this fourth, dealing much in cider and perry making, will be more interesting to local readers—those living in the cider and perry districts. Should anyone interested in fruit and fruit-growing meet with this Part iv. before the other parts let him not think it a fair sample of the whole, but rather a necessary portion of a wide subject which may or may not be interesting to a reader, but is a necessity in a work on this subject of fruit. To many readers in Herefordshire, Gloucester, Somerset, and some portions of other counties it will be the most interesting part of the whole "Pomona," to dwellers in the other thirty odd counties most probably not. Its value to practical cider and perry makers will be great, as they can compare their own plans with those put into print. We are told much under the general head of "Fruit Management," the gathering, Apple heaps, the mill, the grinding, all pleasantly written and interspersed with choice little bits from Tusser, and Partridge, and Phillips. We then pass on to the great subject of Fermentation, at the head of which is the word, so important, "Cleanliness." Then comes "Composition of Fresh Juice and the Theory of Fermentation," "The Practice of Fermentation," "The Difficulties of Fermentation"—all handled in what I may call the "science made pleasant" style—hence readable to non-science people; till, lost in the delights of cider-making, one is ready to exclaim with Gay—

"Come let us hie, and quaff a cheery bowl;
Let cyder new wash sorrow from the soul."

And when Mr. Bulmer heads a paragraph with "Preservation of Cider and Perry," one inclines to think the only possible way to preserve it would be to put it somewhere with a first-rate Chubb's lock on the door. The whole chapter ending with the weighty words, "Good well-made cider should, however, travel in cask anywhere in reason, and it will safely do so if its quality is what it always might be in Herefordshire. In bottle it travels well in cool weather." I would add, "and is most enjoyable in warm weather."

The next chapter is entitled, "The Orchard in its Commercial Aspect." I would ask, Has the orchard ever been or is it now regarded sufficiently in this light? I think not. If, as Mr. Bulmer says, "the small orchardists make better cider than do the large farmers," why should not greater efforts be made in this direction of money value in these days of agricultural depression? The little men first go to the wall. There is wisdom also in another remark of Mr. Bulmer's—"The fruit trees on farms of higher pretensions should also contribute much more towards the rent than they usually do." Mr. Bulmer is speaking in regard to cider orchards, but the like reasoning applies in a lesser degree to other orchards.

Next follows a very short but very important chapter on "Renovation of Orchards," which opens thus, "The condition of the orchards at the present time is most unsatisfactory. A century of neglect has caused the loss of many of the best varieties, and whenever substitutes have been wanted they seem to have been procured at haphazard—that is, at the least possible expense; so that a large number of improved or chance seedlings and other worthless varieties abound in most orchards." No doubt there is something in this; but in my opinion the real sinners have been the nurserymen, whose carelessness has been such that they have sold one variety for another, and even at the present time there are very few who can be trusted to sell fruits true to name. One sentence Mr. Bulmer puts in italics, and deservedly so; it is this—"It must never be forgotten that *when once planted the best fruit trees do not require any more care or expense than the worthless ones*." This neglect of orchard trees is true both as to cider and other varieties of Apples, and in regard to Pears it is worse still, for once there they remain for a greater number of years. The last part of Mr. Bulmer's practical treatise on "The Orchard and its Productions, Cider and Perry," he entitles, "Orchard Prospects," and it would be well if this portion could find its way into most country newspapers. English agriculturists having now to meet the competition of the world. Let them turn, then, from corn and cattle, and pay closer attention to fruits. Our orchards ought to meet all the requirements of the home market. "Why buy from

America and even from Australia," reasons Mr. Bulmer, "what we can produce at home without the expense of packing or cost of carriage, the liability to injury, and the still more serious item of profit to the middlemen or importers?" All that is wanted is a little energy putting into dear old John Bull, that energy of which his son Jonathan has so much. Norfolk Beefs are quite as good dried as Normandy Pippins, indeed many are sold under this foreign name. We need not buy from Americans "Apple chips," "Apple rings," and "Apple cuttings." All is wanted that some man of energy should take up the subject.

Dundee, a place I know well, is about the last place we should naturally have looked for to find marmalade; Portsmouth or Plymouth were a thousand times better situated, but a Dundee man made Dundee marmalade known through the world. But so it is. A Spiers & Pond come from Australia to show Englishmen how to have good luncheon bars. Oh, that dear old John Bull had a little more "go" in him!

"Landlord and tenant are alike interested in the utmost development of home industries. Agricultural societies might with advantage take up the subject," says Mr. Bulmer, "and offer prizes for the best collections of fruits. The subject of fruit-growing might be introduced as a branch of study into our schools; boys in union workhouses who have at fixed times to work on the land might also learn how to plant, bud, graft, and prune fruit trees. Cider of a better class might be produced, cider which not only labourers drink in the hayfield, but the tradesman would drink in his parlour, and the gentleman drink in his dining-room. And many a picnic might resemble the one described by Tennyson, which consisted of all sorts of eatables to tempt the palate; and as to drinkables there was 'a flask of cider from his father's vats, prime which I knew.'"

Next follow, as usual in each part of the "Pomona," the portraits of fruit with descriptions, the Ribston Pippin taking, as it was right, the precedence, of which three coloured pictures by Miss Edith E. Bull are given, and which in drawing and colouring are all that could be wished—no hard shading on the ground, which is inartistic and an injury to the look of the fruit as well, as I must hereafter notice in some of the pictures. We have the Ribston half ripe, also fully ripe, in all its glorious colouring, and a rich-coloured specimen from a very old tree. There is attached to this picture a long—not one atom too long—historical account of this Apple with an engraving of the original tree supported on stakes, as it was from necessity after the gale which blew it down in 1810, after which time it lingered on, but died in 1840, though a healthy sucker sprung up, and in 1875 two pecks of very fine fruit were gathered from this second tree, the child of the first. The engraving of the old propped-up tree is fitly entitled, "Honoured Age."

The next plate, No. xxvi., is one of Pears, all remarkably well shaped, but the colouring of Summer Doyenné is a trifle overdone, while the specimen of the Jargonelles here portrayed were scarcely as fine as are grown in the west of England. The very beautiful and delicate yellow colour of a fully ripe Jargonelle also deserved an illustration.

Plate xxvii. is of Apples, and are admirable. That of Red Astrachan is one of the very best that has appeared, its rich colour and peculiar bloom being given most accurately. Plate xxviii. of Pears, very good in outline especially. Plate xxix. is one of rich-coloured small cider Apples; whilst its successor consists of perry Pears; the two Clusters, Oldfield and Taynton Squash, being with their mingling stalks and leaves very effective.

Plate xxxi. brings us from cider and perry to kitchen fruit—to a group, both wonderfully well drawn and coloured, of Codlins, fruit one always connects with early warm summer days. The central Apple of the group, the Royal Codlin, is one of the very best fruit portraits that has appeared. The same praise may be given to this specimen of French Codlin, which one seems nearly to see round, the drawing and colouring are so good. Plate xxxii., five large handsome Pears, of which two—Beurré Bosc and Beurré Clairgeau, are better to look at than to eat; but better can be said of Durondeau, that most splendidly coloured of all Pears, combined with good flavour. Plate No. xxxiii., a picture of Russets, Wheeler's and Pitmaston, a specimen of each; while three Royal Russets lie together. These latter are not artistically successful; there is a hard line of shade between each, and too dark shading at the bottom of each. Plate xxxiv. gives us two very old friends—Swan's Egg and Aston Town; while the telling little Sanguinole in group and section occupies the centre of the page. Sanguinole, rightly named, as was its older designation in England, "The Blood Red Pear." Plate xxxv. is a gorgeous one of high-coloured Apples—College Apple, which I have never seen, being most attractive in appearance; and Herefordshire Beefing, equally unknown to me, but which must be a rich-coloured fruit: with it

appears an interesting history. I come now to the last picture in this Part iv., in which eleven large Pears are pictured, but not in an artistic sense very successfully. There is a long hard dark line of shadow under Alexandrine Douillard, and another under Passe Colmar, while the two Brown Beurrés look gummed together. The front Beurré d'Anjou is the best in this page. The descriptions of the fruits are, as always, most accurate, and the best possible guide to intending pomologists.

"The Herefordshire Pomona" is thus more than half issued, for only three parts more are to appear. It will be a splendid work, far exceeding anything of the kind ever before published in this country.—WILTSHIRE RECTOR.



HARDY FRUIT GARDEN.

WHERE standard Apple and Pear trees have attained sufficient size and age to produce fruit but fail to do so, or where the fruit is of inferior quality, the present is a good time to cut them down and re-graft with varieties which have been proved to succeed in the locality. Many varieties of the Apple and the Pear, but particularly the latter, although known to be of first-rate quality in certain soils and localities, are found to be quite the reverse in others, and where this is the case it is useless to continue growing them. In certain districts some Apples and Pears are shy or uncertain bearers, others are subject to canker, and others fail from some unexplained causes. It is useless hoping to change the character of the varieties, for, though lifting and root-pruning may prevent canker for a time, it is hardly applicable to standard trees; hence when a tree is affected with canker the sooner it is removed the better. In the case of trees of considerable age and size re-grafting will generally afford more speedy and satisfactory results than planting young trees. In many orchards may be found trees of this description year after year bearing crops of fruit little better than Crabs, which, if operated on in the manner above indicated, might at little trouble be made profitable. Even Crab trees in hedgerows might by grafting them with the hardier free-bearing kinds of Apples be made contributory in no small degree to the supply of this useful fruit.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house tying and regulating the young shoots as they advance must be attended to, leaving sufficient room in the ties for the swelling of the shoots. The daily syringings are likely to make the surface of the borders appear wet whilst beneath the soil may be too dry, therefore see that they are sufficiently moist. The young fruits now swelling fast will be assisted up to the stoning period by supplying tepid liquid manure to the roots of the trees. If red spider appear promptly apply some approved insecticide. The night temperature may now range from 60° to 65°, falling to 55° in the morning of cold nights, and 65° in the daytime from fire heat, and 70° to 75° from sun heat.

Disbudding the trees in the next succession house has been completed if it was attended to as soon as the shoots were sufficiently advanced for the purpose, which is when they can be rubbed off with the finger, and the shoots reserved at the base of the current year's bearing wood will need to be heeled in, so as to give the requisite inclination to the shoots and lay the foundation of symmetrical trees. Extensions and shoots for furnishing the trees will need similar attention. Thinning the fruit where too thickly set must also have attention, removing the smallest first, and all on the under sides of the shoots. Shoots reserved to attract the sap to the fruit should be stopped to two or three leaves. Syringe the trees in the morning and afternoon of fine days, doing so sufficiently early in the afternoon to have the foliage fairly dry before nightfall. Afford liquid manure occasionally to weakly trees, and on no account must the inside borders lack moisture. Continue the night temperature at 55° and 60° in the day artificially, ventilating freely above 65°.

Artificial impregnation of the blossoms of trees sufficiently ad-

vanced for the purpose must be attended to daily after the house has been ventilated for an hour or two, but if bees visit the blossoms it will not be necessary. Some of the trees in the house usually started early in February have set their fruits, and, as these are abundant, a good thinning will be needed when they commence swelling freely. Syringing must be resorted to occasionally when the trees have set their fruits, and this will not only assist in freeing the fruit of the remains of the blossom, but have a deterrent effect on red spider, which sometimes appears on the young foliage. Whilst in blossom a close atmosphere should be avoided by having a little ventilation constantly, but the borders should be kept moist by syringing occasionally, and it should be practised twice daily where fire heat is employed. See that inside borders are duly supplied with water. In the latest houses care must be taken in favourable weather to ventilate freely, as, the flowering being earlier than usual, it is necessary to retard the latest house.

FLOWER GARDEN.

Proceed with pruning and training all climbers, Roses, and other plants against walls or trellises, not overcrowding the shoots, choosing the strongest and best ripened for laying-in. Roses must be pruned, but not too severely; and as most have made considerable growth from the points of the shoots, these should be removed and three or four plump eyes reserved at the base of each. As a rule Roses are pruned too severely, as by shortening back the strong wood more or less according to the variety and vigour of the plant, and entirely removing the weak wood, much finer and more abundant blooms may be obtained than by cutting hard back to a bud or two. After pruning the beds should be well manured and neatly pointed over. Cut out the old and weak branches of Tea Roses entirely leaving the strongest and best situated, removing only their immature points. Stocks of Manetti or roots of Briar may now be grafted, cutting them back so as to leave only an inch or two of stem, to which attach the graft in the usual way and tie tightly, plunging in a close propagating frame in a temperature of 70° to 75°, keeping them in the dark until growth commences, when light should be gradually admitted. The propagation of bedding plants should be forwarded, so that sturdy plants may be secured and well hardened off, as this is essential to secure effective beds in good time.

PLANT HOUSES.

Stove.—Cuttings for early flowering of the useful *Euphorbia jacquiniæflora* should now be inserted, taking off shoots of 4 to 6 inches length with a heel. Old plants that have bloomed may be cut down to within a few inches of the soil, and placed where they will be kept close, and when they have broken they can be shaken out and repotted. It is a good practice to keep up a stock of young plants of *Aphelandras*, *Gardenias*, *Ixoras*, *Rondeletias*, and others of similar habit, as they strike better now than at any other season, and if kept growing will form good plants by autumn. The cuttings should be taken off with a heel, taking care not to injure the bark. *Allamandas*, *Clerodendrons*, *Bougainvilleas*, and other quick-growing plants started some weeks ago are growing fast, and when the shoots are 6 to 8 inches long they may be taken off with a heel and inserted in small well-drained pots two-thirds filled with peat and a sixth of sand intermixed, and filled up with sand alone. In a close frame or under a bellglass in bottom heat they will root readily. *Aristolochias* have curious flowers, and are rapid-growing twiners. Plants from cuttings inserted now will flower in a little more than twelve months. Plants in small pots should be shifted, syringing them daily as the foliage is often attacked by red spider.

Camellias.—From the present time these must be shaded from the sun, or it will destroy the colour of the flowers and render their duration short. Late-flowering *Camellias* have a tendency to lose their buds, which is increased by the drying influence of sun heat: hence the supply of moisture both at the roots and in the atmosphere should be liberal. As the plants cease blooming clean them thoroughly. Those which flowered early in autumn are growing, and should be removed to a house where they can have shade from powerful sun and a temperature of 55° at night and 10° to 15° rise by day, affording plenty of moisture at the roots and in the atmosphere. Any plants that have become straggling should be headed back, those

with very luxuriant shoots being shortened in order to keep the plants in good form.

THE BEE-KEEPER.

A STANDARD FRAME.

I AM pleased to observe that the British Bee-Keepers' Association has resolved on the discussion of the question of a standard frame to be "stamped with its sanction and authority." This Association now happily occupies such a paternal relation to bee-keepers generally as, I think, justifies it in at least attempting to grapple with this question. The pity is that it could not have been done years ago. To their credit, many prominent hive-makers have pertinaciously stuck to the special sizes of frames first issued by them, recognising the injustice of altering the same for their own advantage, but to the detriment of their customers. Most of these are agreed on one or other of the so-called Woodbury sizes, varying only in the depth of the frame by a fraction of an inch. On the other hand, would-be leaders of style are constantly altering their standard (?) Now it is rectangular, then tapered, now one size, then another, differing by inches. Thus not only are beginners perplexed, but others who prefer to purchase their hives are being constantly met by the difficulty of varying dimensions.

Then, even though a bee-keeper adopts and determinedly adheres to a size of his own, he often finds himself in a difficulty when, through purchase or present, he may become the owner of a stock in another hive. Neither can he exchange or borrow a frame or two of brood, honey, or empty comb without in many cases having to make a transfer to his own frames, or tolerate an odd-sized frame for a time. And, after all, it can scarcely be said that any of the leading frames in use are other than arbitrary in dimensions. The discussion of the question, though opportune, is thus beset with great difficulties, and its settlement can scarcely fail to create unpleasant feelings somewhere. We may foresee, however, that if a decision is arrived at at all, it must be in the adoption of some style of frame at present extensively used.

As a small contribution to the discussion from the Scottish point of view, and from one who does not make hives for sale, I may safely affirm that we in Scotland are all but unanimous in using what I may call the Scottish Woodbury frame. Mr. Woodbury probably adopted the internal dimensions of his hive, 14½ inches square, from the calculation that ten combs would occupy about the space of 14½ inches. We may, however, dismiss the idea of length—that is, measuring across the combs—as it is evident that hives may profitably contain more than ten frames. The other dimension, which we shall call the width, is that which regulates the size of the frame. The original Woodbury hive was 9 inches deep, but the frames were hung in notches cut in the sides, so that their upper surfaces were ¼ inch under the level of the crown board as then used. With the adoption of the quilt this travelling space was abolished, and experience in like manner led to the discarding of the notches. The frames, therefore, now rest either on the sides or in a rabbet cut out of them. I believe I am responsible for causing our leading Scottish makers to make the frames rest on a full 9 inch side—the intention having been to avoid cutting a stock width of board. With this alteration the internal dimensions of a Woodbury frame, whose end bars are three-eighth-inch wood, and bottom rail one-eighth-inch, will be 13¼ inches by 8½ inches. I am in a position to say that this size of frame is pretty general in England and Ireland as well as in Scotland.

I have been thus particular in regard to dimensions, not that I may ride a hobby, but because this particular frame contains within its measurements a unit that I think ought to be in any frame claiming to be a standard. That unit is 4¼ inches, the dimensions either way of the American 1 lb. section, introduced by A. I. Root, and sold in this country by hundreds of thousands annually. The Langstroth frame, most generally used in America, holds eight of these sections; the frame I have described holds six exactly as to depth, but with about three-eighths of an inch of room to spare in the length. All bee-keepers who work sections in frames, either in the body of the hive or in a top-storey similar to that below, will at once see the force of my proposal that the dimensions of this section should be taken as the unit of measure in the British standard frame.

I anticipate objections to this proposal so far as the Woodbury frame above described is concerned. First, though the depth of 8½ inches is correct for two sections, the length of 13¼ inches is too much for three. To this I reply that this difference is reduced by using thicker wood for the wide frames to hold the sections;

and even though two common frames be used instead of a single wide one, a small vertical passage between the sections is really no disadvantage. I may remark here, however, that we cannot well alter the length of the Woodbury frame, owing to its very general adoption. The second objection regards the depth, it being more usual in England to have the upper surface of the top bar 9 inches above the floor-board, thus giving three-eighths of an inch less depth than the frame I describe, or say $8\frac{1}{8}$ inches inside. But it should be remembered that hives are comparatively easy to alter so far as depth is concerned, especially to so small an extent as three-eighths of an inch. However, without alteration, the difficulty is met in a very excellent way by the use of Mr. Cheshire's section frame, which has no top bar, and thus allows the full depth of $8\frac{1}{2}$ inches for the sections and brings them on a level with the brood frames.

It seems to me, therefore, that there is ground for claiming that the standard that is to be should either be the improved Woodbury or the Langstroth. The latter hive is scarcely used in this country, and we believe its frames are too long for our short seasons and moist winters. Certainly it is more difficult to handle.—WILLIAM RAITT, *Blairgowrie*.

P.S.—The above was in the hands of the Editor before I had seen the remarks of the Rev. Geo. Raynor in support of the motion regarding a standard frame. I am happy to see that we agree in recommending the same frame, and on the same arguments.—W. R.

BEE-KEEPING FOR BEGINNERS.—No. 2.

(Continued from page 142.)

BEGINNERS have of course one or more hives to manage; and those who have resolved to commence bee-keeping will have to obtain bees somewhere. If hives are bought at a distance from home a beginning can be made at any season. From August to April stock hives can be tied and ventilated so as to travel safely by railway. In summer, or say about the swarming season, stock hives are generally very full of bees; their internal heat is great and their combs are soft. It is then unsafe to remove hives to a distance by a carrier. But in summer swarms may be obtained, and therefore a beginning in bee-keeping may be made at any season. If bees are kept in the immediate neighbourhood of those who wish to make a commencement in a small way, our advice is to purchase bees at home; and stock hives may be purchased and safely removed a short distance between September and March. In summer weather bees travel farther from home, and are then apt to return to their old stand if removed a less distance than a mile and a half. I have just taken thirty-six hives from my garden to another, about 600 yards distant, without losing a bee. Not one returned to the old place. Bees do not fly far from home in winter.

The position of an apiary is chosen by the owner, who is generally guided in the choice by appearance and convenience. It is not of much consequence whether hives have a south, west, north, or east aspect. In summer it does not matter at all, but in winter we like our hives to have a sunny position, as sudden chills to bees flying are avoided. But after all we attach more importance to a sheltered position than to a sunny one, for bees dislike winds very much. In windy weather when bees are at work they seek the shelter of hedges and ditches, houses and hills. "Bee lines" or straight courses are then disregarded. Provide an apiary if possible with both a sunny and sheltered position, but if it cannot have both let it have shelter. With an open space in front of hives bees cannot have too sheltered a place for their home.

Much has been said of late years about bees not living long in summer, that hard work brings them to an early grave. Working bees naturally live nine months, but thousands and tens of thousands are lost before they are three months old, not by hard work in fair weather, but by misfortune in storms of wind and rain. Even when bees are not at work outside, a sheltered corner is better for them than a bleak one. But wherever situated, hives should be sufficiently covered to protect them from all rain and the direct rays of the sun.

Our object in these notes is not to compare hives of different kinds or to commend one kind to the notice of beginners. Probably too much has been said on all sides about the excellence of particular hives and the superiority of systems of management, but not a word too much has been spoken or written as to the importance of thorough ventilation. Pure air is good for bees as it is for men. If bees are to be healthy and do much work let them have plenty of pure air. Sufficient ventilation in bee hives is highly important, especially in winter. Hives not made of porous materials should have ventilating holes in the tops or sides. In summer when hives are full bees ventilate their hives and drive out the moisture by a natural process—viz., the fanning of their wings. At other and colder seasons when hives are not filled with bees the moisture is

condensed on the inner surface, and bees cannot drive it out. Hence the importance of ventilation. In the breeding season ventilation may be given too freely, and young brood exposed to chills. When this happens the bees try to seal up the ventilating shafts. An American bee-keeper says, "I have kept bees for ten years—the first five years in box hives, the last five years in frame hives. I lost all but one hive the first year, and that hive had cracks on the side so that you could see the bees. By this I learned that bees want air to let dampness escape. The others were wet and icy. Since then I have packed and covered all round and on the top, and never lost one till last winter, when I lost forty-five hives out of forty-seven. I extracted too much honey from them and thus rendered them too weak." Pure air and warm comfortable houses for bees in winter are not unimportant considerations in bee-keeping.—A. PETTIGREW, *Bordon*.

TRADE CATALOGUES RECEIVED.

George White, Paisley.—*Catalogue of Florists' Flowers and Bedding-out Plants*.

Boulton & Paul, Norwich.—*Catalogue of Garden, Park, Kennel, and Aviary Appliances (Illustrated)*.

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Farm Seeds*.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Farm Seeds*.

Cranston's Nursery and Seed Company, King's Acre, Hereford.—*List of New Roses for 1882*.

Edward Gillett, Southwick, Mass., U.S. America.—*Catalogue of North American Plants*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—Letters reaching us on Wednesday morning cannot be answered satisfactorily the same week, and only those of an urgent nature are accorded brief replies. The answers to others will appear in a future issue.

Vines Scalded (A. B.).—The injury is not caused by insects. The leaves are scalded. You must ventilate more carefully, and even shade lightly if the scalding continues. If your letter had reached us sooner we could have replied at greater length.

Vinery (Yorkshire Rector).—When correspondents whose letters reach us on Wednesday morning request a reply in the next day's issue it must necessarily be brief. The house will do admirably. The flue must not dip as suggested. To avoid this the furnace had better be lowered, if that can be done. An alternative plan is to run the flue under the back stage, but close to the front by the side of the path. There must be no sharp turns in it.

Tacsonia insignis (J. S. G.).—To ensure the flowers setting you must train the shoots in a light position and carefully watch the opportunity for artificial fertilisation, which can be effected when the pollen is ripe and bursting from the anthers and the stigma slightly viscid. Choose a warm bright morning for the operation, and avoid having much moisture near the plant the same day. Stop the shoots beyond the flowers which are set, and you will no doubt succeed in obtaining seed.

Broccolis v. Cauliflowers (Inquirer R.).—The vegetables to which you refer are not Cauliflowers but Broccolis, which are never so delicate in flavour as Cauliflowers, but have in comparison with them what you term a "strong" taste. There is nothing wrong in your method of culture, and we know of no means that you can adopt to obtain better results, except that you tie the leaves over the heads and cut them when they are white and tender. Perhaps you leave them exposed too long before cutting, and then possibly they are not cooked immediately after they are cut. Seaweed is a good manure for all green crops of this nature.

Cocoa-nut Fibre Refuse (W. H. B.).—It is very suitable for mixing with loam, in the absence of leaf soil, for such plants as need a somewhat light compost, as the plants you name do in their early stages; but when placed in the pots in which they are required to flower, such plants as Pelargoniums and Cinerarias succeed better in heavier soil. Cocoa-nut fibre refuse is excellent for mixing with loam for Ferns and Camellias. You may either sow the seed of Beet thinly in pots or boxes in a cold frame, or in rich soil under a handlight in a sheltered position, as may be most convenient, afterwards potting the plants or pricking them out in boxes or frames in preparation for the flower garden.

Lapageria alba (*Subscriber*).—If the pot is fairly filled with roots and the plant is healthy, it may be planted out in April, and it will thrive if it receives proper attention in watering, and syringing on the afternoons of fine days. As you say nothing about the depth of drainage or the soil we presume you do not require information on these points. The plant will need careful watering in the pot, the supply being regulated by its condition and root-action, also by the state of the weather. You must take care to protect it efficiently from the attacks of slugs, or the work of a year may be destroyed in a night.

Roses from Cuttings—Lobelias (*Idem*).—This is the wrong time of the year for inserting such Rose cuttings as you describe. The only plan we can suggest is for you to insert them in sandy soil under handlights, only one bud being above the surface, and the sand being kept moist, but you must not expect many of them to grow. If you wish to know the last modes of striking Rose cuttings read the articles on pages 49 and 350 of our last volume. If you do not possess these you can obtain them from the publisher in return for seven postage stamps and a request that he send you Nos. 56 and 69. If you only need a few plants of Lobelias you can provide them by dividing the plants as you propose; but when large numbers are required they are raised from cuttings inserted in sand in pots and placed in a frame or propagating house having a minimum temperature of 70°, the sand to be kept moist and the cuttings shaded to prevent the leaves flagging.

Labels Oxidised (*Freemason*).—There is no simpler plan than we are aware of than rubbing them on a knife board with emery powder or powdered bathbrick until they are bright. We have cleansed them in this way, also by placing them between the bushes of a rotatory knife-cleaning machine. We have no record of the winners of the prizes for French Marigolds at the Manchester International Exhibition of last year. The information could no doubt be obtained from the Secretary of the Botanic Gardens, Old Trafford, where the Show was held.

Mulching Strawberries and Fruit Trees (*J. J.*).—You ask if this is a good time to give Strawberries and other fruit trees a good mulching of manure. As to Strawberries our reply is in the affirmative, and especially if the soil is of a light and dry nature; if strong and wet the work had better be deferred until the flower trusses are fairly visible above the foliage. As to the "other fruit trees," no one can say whether they need mulching at all or not without knowing their condition. If they do need such aid, act in accordance with the nature of the soil as we have above indicated.

Evergreens for Exposed Situation (*H. B.*).—Hollies are about the hardiest and best suited for withstanding the draughts, dust, and smoke of town or suburban gardens, especially that fine variety *Ilex Hodgkissii*. This we advise, and the best time for planting is during moist weather in April, when the plants are about starting into growth. We have found *Rhododendron ponticum* do well in exposed situations; but all evergreens in draughty positions are liable to have the foliage more or less browned during the winter.

Tuberose Culture (*E. E. W.*).—We presume you have no stove but only a greenhouse. You may pot the bulbs now, singly, in 5 or 6-inch pots, according to size. A suitable compost is formed of a little more than half turfy loam, the remainder sweet decayed manure, or, failing this, leaf soil, mixing with the bulk a tenth part of silver sand. Let the soil be moist but not wet when used, and the apex of the bulbs should be just above the surface. Stand the pots on the floor of the house or other convenient place, and cover them 3 inches deep with moist cocoa-nut fibre refuse, working it well between the pots. This will prevent the soil drying, and no water will be needed until the growths appear above the surface of the covering. Then withdraw the pots, keeping the growths shaded for a few days, gradually inuring them to the full sun. The soil must now never be allowed to become dry, and as the spikes advance and the pots are filled with roots liberal supplies of water must be given, and liquid manure twice a week will be beneficial. If the weather is very hot and dry the pots may be placed in saucers during the summer. The plants must have a light position, and be syringed or sprinkled on the evenings of hot days. With your conveniences the bulbs will be of little use after flowering, and all you can do is to water them carefully, so as to maintain the foliage fresh as long as possible, affording the plants a very light and sunny position.

Heating Stove and Greenhouse (*C. P. L.*).—According to the arrangement of the pipes as shown in your plan you have the same number of pipes in the greenhouse as in the stove, which will afford an equal temperature in both, presuming them to be of equal diameter. Two rows of 4-inch pipes will be required in the stove, but those for the greenhouse need only be 3-inch, and even these will give you too much heat at times, which, however, can be easily regulated by the valves as shown in your plan at II, those being required on the return as well as the flow pipe. In other respects we consider the arrangement the best that could be made under the circumstances, as the path at the ends may prevent the pipes being taken across the ends of the house where the doorways are situated, which would have saved considerable piping in the greenhouse, one row of 4-inch pipes all around that structure being sufficient to exclude frost. The air pipes at G G should be as nearly as possible on the same level, and from the boiler to those points must be a slight ascent, so as to cause the air to rise to those points and escape by the air pipes.

Peach Tree Dying (*F. P., Dublin*).—Your tree appears to be young, and has probably not been planted more than two years. We attribute its death solely to the action of frost on the tissues before the tree was removed from the open ground. However slight the injury may be at the time it almost invariably spreads and grows, causing in stone fruits gum, and in pippin fruits canker. The fact that the injury in this case is not at the base of the stem suggests that that portion was protected, possibly by snow. Many cases have come under our notice of trees, a portion of them dying from apparently some obscure cause, but on investigation we have distinctly traced the origin of the disease to the action of frost that has ruptured the tissues of the trees, it may be some years previously. Your tree has been diseased for some time, and what you term a "sudden attack" is a sudden collapse consequent on the injury that was caused before the tree was planted in the house. The branches growing below the diseased point will probably remain healthy, and may form the basis of a fruitful tree, but this can only be expected when every part of the disease has been removed.

Show Fixtures (*E. L. P.*).—We are obliged by your letter. The subject has had our attention. Many provincial shows are held of which we have no intimation, or the schedules only reach us a few days previous to the shows, and too late for our announcing the exhibitions. In reference to Rose shows, however, which you specially mention, lists as complete as we, with the aid of the Secretary of the National Rose Society, could obtain were frequently published in our columns last year, and this year the fixtures of shows already determined were published in our issue of the 16th ult. Further, when the schedules of shows reach us soon enough they are acknowledged and the dates

published in our "Notes and Gleanings" columns. We find it impossible to publish a list of shows every week, the great pressure on our columns quite preventing this; but of shows that are advertised a tabulated list will be kept and published from time to time. Immediately pending shows will also be published in our list of "Coming Events" on the first page. This was done throughout last year, but the circumstance appears to have been overlooked by you. You do not name the Rose show to which you refer, and so we are unable to say whether it was announced or not. Successful and well-managed societies find it to their advantage to advertise their shows.

Annotta—Bixa orellana (*X., Surrey*).—The Annotta of commerce is a red dyeing drug, produced from the red pulp which covers the seeds of *Bixa orellana* (fig. 41), a shrub growing in South America, and cultivated in the West Indies. The fruit is like a Chestnut, a two-valved capsule covered with flexible bristles, and contains a certain number of seeds smaller than peas. These seeds are covered with a soft, viscous, resinous pulp of a beautiful vermilion colour and unpleasant smell, like red lead mixed with oil; and it is this matter which constitutes annotta. The mode in which it is obtained is by pouring hot water over the pulp and the seeds, and leaving them to macerate until they are separated by pounding them with a wooden pestle. The seeds are then removed by straining the mass through a sieve; and the pulp being allowed to settle, the water is gently poured off, and the pulp put into shallow vessels, in which it is gradually dried in the shade. After acquiring a proper consistency it is made into cylindrical rolls or balls, and placed in an airy place to dry, after which it is sent to market. This is most common in the English market, and is in the form of small rolls, each 2 or 3 ozs. in weight, hard, dry, and compact; brownish without and red within. The other process of manufacture is that pursued in Cayenne. The pulp and seeds together are bruised in wooden vessels,



Fig. 41.

and hot water poured over them; they are then left to soak for several days, and afterwards passed through a close sieve to separate the seeds. The matter is then left to ferment for about a week, when the water is gently poured off, and the solid part left to dry in the shade. When it has acquired the consistency of a solid paste it is formed into cakes of 3 or 4 lbs. weight, which are wrapped in the leaves of *Arundo* or *Banana*. This variety is of a bright yellow colour, rather soft to the touch, and of considerable solidity.

Ornamental Shrubs (*H. K.*).—You do not say how many you require. The choicer varieties of *Rhododendrons* would have a fine effect, and will grow in soil that does not contain lime. We will readily select some varieties for you if you desire us to do so and will state the number you require. Hollies, such as the Gold and Silver Queen, *Euonymus* in variety, *Desfontainea spinosa*, *Laurustinus*, *Lilacs*, *Olearia Haasti*, *Arbutus*, *Andromeda floribunda*, *Berberis Darwinii*, *Garrya elliptica*, *Escallonia macrantha*, *Hypericum oblongifolium*, *Raphiolepis ovata*, *Aralia Sieboldi*, and *Yuccas*, would all succeed in your neighbourhood. As fruit-bearing shrubs—*Aucubas*, *Skimmia japonica*, *Symphoricarpos racemosus*, and *Pernettya mucronata* are among the best; and for walls *Crataegus pyracantha* and *Cotoneaster microphylla*. Paul's Double Scarlet Thorn, *Laburnums* (Scotch), *Guelldres Roses*, the Gum *Cistus*, *Syringas*, *Ribes sanguineum*, *Spiraea arifolia*, *Althaea frutex*, and Spanish Broom would all be suitable; but as you do not state the extent of your garden, we have no idea whether we are naming too many or too few for your purpose. The shading material you name will in all probability be sufficient for your purpose. Your house will, we believe, be a tenant's fixture if you do not attach the framework to the loose bricks with mortar; but in all cases where a landlord is disposed to enforce his right it is advisable for a tenant to consult a solicitor before building. In the article to which you refer it is stated that a quart of common petroleum placed in an apparatus holding 250 gallons will be useful in preventing incrustation.

Vine Management (*A Subscriber, Settle*).—You have done quite right in watering the inside border and top-dressing it, provided you have given suffi-

cient water to moisten every particle of soil. It is not necessary to remove the superfluous huds now; it is usually the best plan to wait until the bunches are visible, and when these are present in the growths at the base of the spurs, to remove those above them. It is important, too, that you do not have too many laterals. We do not like them much closer than 18 inches apart up each side of the rods, as the foliage then has space to develop, and without good foliage you cannot expect to have fine fruit. The stopping must depend on circumstances, but by all means permit two or even more leaves to remain beyond the bunches if there is space for them, but avoid overcrowding as you would a scourge. You had better crop rather lightly this year, and do not maintain a high forcing temperature.

Pomegranate not Flowering (*A. J. S.*).—Your plants never will flower under the treatment you are pursuing of allowing the shoots (possibly strong) to grow unchecked until the autumn and then cutting them off "for appearance." The flowers are borne on small, hard, wire-like twiggy shoots that are not shortened, and these you must endeavour to produce. The first process we advise you to adopt is root-pruning, by digging round the plants as if preparing them for removal, cutting off all the roots beyond a certain radius (which can only be determined by the size and condition of the specimens), and filling in the trench with soil containing a large admixture of lime rubbish, ramming it down quite hard. This will check luxuriant growth; but if any shoots appear to be starting strongly do not let them grow until the autumn, but pinch them early in summer, repeating the process as often as is needed. You will thus at the same time arrest root-action and admit the sun and air to the smaller growths, which, if well ripened, will produce flowers. What you must endeavour to provide are small short-jointed growths not exceeding 6 inches in length, and these by exposure to all the sun possible should be rendered quite hard. These growths should not be shortened, and the pruning of such must be done after flowering, not before.

Mandarin Orange Culture (*San Cristabel*).—You will find much useful information upon Orange culture generally in a work by Mr. P. L. Simmonds, entitled "Tropical Agriculture," which is published by Messrs. E. and F. N. Spon, 43, Charing Cross, and the price is, we believe, about 21s. Where Oranges are grown largely trees raised from seed are preferred, and as there all the varieties are found to come true from seed, this is a ready mode of raising a stock. In some districts the seeds are sown at regular distances apart in the land intended to be devoted to Oranges, and until the trees attain to bearing size, which they do in from four to six years, according to the soil and position, the ground is cropped with other fruits such as Melons, or vegetables. A moderately heavy soil is preferred to a light sandy soil; and as the trees form most of their roots near the surface, the soil is not much disturbed after they attain a good size, but surface dressings of manure are liberally applied. When grafted the Bitter Orange or Citron is selected for stocks. If you wish to send trees from this country they must be sent subject to the conditions described on page 472 of our last volume, the issue of November 24th, 1881.

Destroying Red Spider (*An Amateur of the Second Year*).—Your case is evidently a serious one, or the insects would not have attacked the Pelargoniums—a circumstance that we have never known at this period of the year. For preventing the insects reaching the Vines you must adopt a hold measure—namely, at once destroy the Cucumber plants. As the plants have been bearing since Christmas and are now infested with red spider, nothing that you can do to them will render them profitable, and the insects cannot be extirpated without giving the house a thorough cleansing. First cleanse any plants you have in pots. If you dissolve 2 ozs. of soft soap in a gallon of water, and to this add 1 oz. of petroleum, mixing them well together, and dip the plants in this at a temperature of 120°, not many insects will remain alive, and such plants as you describe will not be injured. The oil can be mixed much better in soapy than in pure water, and if the solution is used at or about the temperature named, no sediment is left on the leaves. Top-dress the plants also with fresh soil and wash the pots before placing them in the other house. Next remove the soil from the Cucumber house and wash every portion of the woodwork and glass, also dress the walls with limewash in which a handful of sulphur is mixed. Thus you may eradicate the insects, and plant young Cucumber plants, which if kept clean and well managed will afford you far more and better fruits during the season than you can possibly obtain from the old plants. Let all the plants in the vinery be similarly cleansed, and by maintaining a healthy atmosphere, and giving the Vines a heavy syringing with pure water once a week, choosing the early afternoon of a fine day for the work, so that the foliage becomes dry before night, there is no reason the Vines should be attacked by the pest. You have done right in sulphuring the pipes. Brown sulphur is quite safe provided the pipes are not unduly heated when it is applied. We are glad to have your letter and suggestion, and if you will compile a list of the troubles of amateurs, and state the subjects on which specific information is needed, the matter shall have attention.

Names of Fruits (*J. A. W.*).—1, not known, probably local; 2, resembles New Northern Greening; 3, Herefordshire Pearmain. (*G. B.*).—No doubt you are animated with the best intentions by gathering Apples from the gardens of cottagers and sending them to us to be named. We have at the expenditure of much time named hundreds of fruits thus forwarded from time to time, and in all probability scarcely any after care has been taken to preserve those names, and possibly a number of them were never attached to the trees. The small Apple you have sent is Wykeham Pippin, the large one Dunelov's Seedling. The others are poor specimens and not worth naming, nor can we undertake to name fruit under the circumstances indicated.

Names of Plants (*P. M.*).—*Aspidium mucronatum*. (*J. S. Uper*).—1, *Begonia semperflorens*; 2, *B. lucida*; 3, *B. fuehsioides*; 4, *B. Ingrami*; 5, *B. Saundersii*. (*M. P.*).—1, *Acacia melanoxylon*; 2, *Acacia lophantha*; 3, *Tydaea Madame Heine*; 4, *Chamaeranthemum Beytrichii*; 5, *Acacia platyptera*; 6, *Acacia armata*. (*J. V. B.*).—1, *Lygodium scandens*; 2, *Adiantum assimile*; 3, *Adiantum hispidulum*; 4, *Davallia canariensis*; 5, *Asplenium longissimum*; 6, *Pteris serrulata*.

A Dead Hive (*H. A. Wilkinson*).—"On coming to reside here I bought two hives from the garden of a neighbour. One of the hives was heavy, said to be well filled with honey; the other had had a super on it, but was light, and would require to be fed during the winter. Shortly after I got them there arose a great commotion between them. I sent for a bee-keeper, who smoked them and quieted them for the time. Shortly after I began to feed the light one, and have continued to feed it till the present time. During fits of sunshine the bees would come out and buzz about. The bees of the other hive made no appearance. The other day I had it looked into, and found neither bees nor honey—nothing but empty combs. Must the combs be kept for a swarm or taken for wax?" The above note, by your request, was submitted to

Mr. Pettigrew, who observes—"If the combs were built last year—in other words if they are young and sweet, they may be used again with some advantage, but if they are old or black a swarm would do better without them. In good seasons for honey-gathering old combs hinder rather than help swarms. From the description given of your hives it is not easy to tell whether they were strong or weak when you got them, neither can we tell how much they suffered from loss of bees by removal from a neighbouring garden at the time. We think with you that the fight was for the honey, though probably the victorious bees were not those of the other hive, but belonged to some neighbour."

COVENT GARDEN MARKET.—MARCH 8.

BUSINESS remains substantially the same as last week, and prices continue to be well maintained for superior produce.

FRUIT.											
		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	0	6	0	Lemons.....	½ case	13	0	16	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	Nectarines.....	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	½ 100	4	0	6	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	0	0	0	0
" Red....	½ sieve	0	0	0	0	Pears, kitchen..	dozen	1	0	1	6
Flgs.....	dozen	0	0	0	0	dessert.....	dozen	0	0	0	0
Filberts.....	½ lb.	0	0	0	0	Pine Apples....	½ lb	1	6	2	0
Cobs.....	½ 100 lb.	53	0	65	0	Strawberries....	per oz.	1	6	0	0
Gooseberries....	½ sieve	0	0	0	0	Walnuts.....	bushel	7	0	8	0
Grapes.....	½ lb	3	0	10	0						

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms.....	punnet	1	0	1	6
Asparagus.....	bundle	9	0	10	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	½ 100	2	0	2	6	Onions.....	bushel	3	6	0	0
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	1	3	1	6	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	3	6	3	6
Carrots.....	bunch	0	4	0	6	Kidney.....	bushel	3	0	3	0
Caulicums.....	½ 100	1	6	2	0	Radishes....	doz. bunches	1	0	0	6
Canliflowers.....	dozen	1	0	3	6	Rhubarb.....	bundle	0	4	0	6
Celery.....	bundle	1	6	2	0	Salsafy.....	bundle	1	0	0	0
Coleworts.....	doz. bunches	2	0	4	0	Scorzoneria.....	bundle	1	6	0	0
Cucumbers.....	each	1	0	2	0	Seakale.....	basket	1	0	1	6
Endive.....	dozen	1	0	2	0	Shallots.....	½ lb.	0	3	0	0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3	0	0	6
Garlic.....	½ lb.	0	6	0	0	Tomatoes.....	½ lb.	1	0	2	0
Herbs.....	bunch	0	2	0	6	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	0



POULTRY AND PIGEON CHRONICLE.

ECONOMY OF THE FARMYARD.

(Continued from page 185.)

ALTHOUGH we think the last-named bowstring roofing for a covered yard the best, it is, however, a question which is cheapest as a waterproof covering. The corrugated iron sheets laid on thin boarding are advocated by the builders who introduced the bowstring principle for construction of the girders, and the chief reason assigned is, we presume, because it is light, and this seems to be especially necessary in the case of wide spaces. But we do not see the necessity as a rule of the wide span, because the span may be reduced without disadvantage in the event of the covered yard being divided into two or more compartments. This seems to be an important consideration, because if the yard is to be divided it may be roofed upon the wide ridge-and-furrow principle, and made substantial enough to carry the weight of slates or pantiles, either of which are enduring, and would require but little if any other ventilation if not laid on boarding. This, however, although a lasting roof, is expensive, and more often requires repairs than iron sheets, which if laid on boarding would also render ventilation necessary, and when painted white the heat of summer would be avoided. In the winter time, as such a building would be used only for store cattle or dairy cows it would be warm enough, if the sides and entrances are properly constructed for giving free access to horses and carts, having also windows or louvred apertures to furnish light. These, in the event of the roof being made on the ridge-and-furrow style, may be introduced at the ends of the ridged roof.

Thus far we have endeavoured to draw comparisons for the consideration of the home farmer and the builder. But in refer-

ring again to the bowstring roofing it is a moot point as to the best material to be used as the covering, for the iron sheets, especially when used without boarding, may be very much lighter than anything else, excepting that of canvas or felt dressed with tar. We have, however, lately had introduced to our notice an article called the Patent Roofing Danish Asphalt, which is also said to be fireproof. The latter point, however, we must pass, because, like all such materials, it must be laid on boarding, and, therefore, in case of fire it must give way from the effect of fire inside when the boards are burned. But it is said that it will resist the action of fire successfully from the outside surface when properly laid on the roof. It certainly is extremely hard and tough when the stoutest material was examined by us a few weeks ago. As we have never tried it we can offer no experience except that of farmers who have done so, and have furnished testimonials relating to its advantages. It appears that this material has been in general use throughout northern Europe for twenty years for roofing Government and railway buildings, penitentiaries, dwelling houses, mills and factories, farm and other buildings which proves that this roofing material successfully resists all variations of climate or temperature. It appears also to have been used to a considerable extent in Ireland. The exact expense of this roofing we have not ascertained, but consider it cheaper than iron, slates, or tiles, and being so much lighter may be used on a building less substantial than is usual. It being, however, completely air-tight, any buildings for cattle accommodation would require careful ventilation.

The practical adaptation of the covered yards to various purposes as regards the internal divisions, if any, and the height of the caves at the entrance, must now be referred to, for it would be very desirable if at haytime or harvest it could be made so as to admit waggons loaded with corn or hay, in the event of a sudden change of weather whilst stacking may be going on. At the entrance we should advise wide sliding doors placed with the threshold high enough to avoid impediments by accumulations of litter and manure. We should also prefer that the inside may be made with a moveable partition, so that it may be used as one or more yards as required; it may also be used for swine, for as accommodation for breeding sows nothing can equal it, especially when the dung from the cart-horse stables can be conveniently used for littering the yard. Swine, however, should be properly rung so that they cannot dig or root up the dung, because this injures the manure and injuriously affects the atmosphere of the yard, also inducing the animals to bury themselves in the heated dung, which is extremely unhealthy for them, either for stores or sows in breeding condition. We have frequently in designing new covered yards found that feeding racks may be fixed and used on both sides of the yards with advantage, so that they may not interfere with littering or removal of the accumulating dung, for it must be admitted that the accumulation of manure must of necessity be provided for.

Drainage also is an important point whether the accumulations are little or much, but according to our practice there would be no drainage from the yard unless by an accidental entrance of rain water or snow. We should treat the covered yard precisely the same as a well-managed cattle box, with an earth floor for absorption of the urine, and the use of straw as litter in small quantities only as cleanliness dictates. But to prevent its lying hollow and heating, the straw should be cut into such lengths as would occur when an ordinary truss was cut in the middle with a hay knife or thatcher's knife, and then, by the occasional application of fine dry screened earth in small quantities, the dung may be kept in a close and solid condition. In the grazing districts of certain counties we often find a portion of peaty soil, and this soil when dried furnishes the best substitute for straw that we have ever used; and the fact of its being composed of inert vegetable substances, and containing no seeds of weeds, makes peat a valuable agent in the absorption of liquid manure.

With these advantages accruing to the use of covered yards, the comparison with open yards will not bear the test, for in open yards we have not only the discomfort of the cattle to contend with, but the enormous loss and waste by drainage consequent upon the variations of the weather, and in many cases deteriorating the water of ponds used by cattle and horses. In most cases of open yards the whole area is seldom littered with straw, a space being occupied by roadways, &c., where the cattle or swine drop their excrement, when it is sure to be lost during alternate dry and rainy weather. It is, however, important that the home farmer should understand the difference between manure made under covered yards and that in the open air. Nothing has appeared since the experiments of Lord Kinnaird in the year 1850 so convincing as the practical details and results related in the Journal of the Royal Agricultural Society of England in 1853,

vol. xiv., part ii. The experiments were carried out as follows—In October, 1850, the yards were stocked with fourteen feeding bullocks receiving the same quality of food as another lot of eighteen tied up in the tyre; in the open court were young animals having a full allowance of Turnips. The feeding beasts were all of the same age—viz, two off and rising three years old, fed twice a day on Turnips, of which each had about 1 cwt., and once a day on steamed Swedes mixed with cut chaff, and 2 lbs. of barley meal mixed with a little linseed, or 3 to 4 lbs. of oilcake. Of this mess each got 22 lbs. Both byres and courts were littered twice a day, and, as near as we could judge, each animal had about the same allowance of straw, and all had a constant supply of oat straw in their racks as fodder. A field of twenty acres of very equal quality, being a rich loam, naturally dry, and in good heart, exposed to the south at an elevation of from 80 to 100 feet above the sea, was selected for the experiment and divided into two equal portions. The manure applied was at the rate of twenty cartloads per acre. The whole field was planted with Potatoes (Regents) the first fortnight in April. One half of the field was manured with dung from the covered yards, and the other half from the open courts. The crops were lifted on the first week in October. The land manured with the uncovered dung produced an average weight of tubers of 7 tons, 7 cwt., 53½ lbs. per acre. The covered dung produced an average of 11 tons, 18 cwt., 100 lbs. per acre. As soon as possible after the Potatoes were lifted the land was clean ploughed, and on the 22nd and 25th of October Wheat (Zenton variety) was drilled in at the rate of 3 bushels per acre. In the spring the whole field got a dressing of 3 cwt. Peruvian guano per acre. The whole crop was cut on the 26th of August. On the 4th of September the produce of each portion of the field was thrashed, the grain measured, and the straw carefully weighed. The Wheat produced on the land after the uncovered dung was forty-two bushels per acre, weight 61½ lbs. per bushel, weight of straw 1 ton, 1 cwt., 2 qrs., 24 lbs. per acre. The Wheat produced on the land after the manure made under cover was fifty-four bushels and 26 lbs. per acre, the weight per bushel 61 lbs., weight of straw 2 tons, 2 cwt., 26 lbs. per acre; showing the great superiority of manure made under cover, which entirely agrees with our own experience for many years. This added to the benefit derived by the animals, whether kept as store stock or fattening, from the advantage of protection in bad weather, and the fact that warmth and regularity of the temperature is equivalent to a certain portion of food as well as improved health of the stock, proves that covered yards are a great economy when properly designed and carried out.

WORK ON THE HOME FARM.

Horse Labour.—When the weather proves favourable, and the land is white and dry on the surface, the horses should be daily engaged in preparing the land and sowing Lent corn; but this is not enough to insure a good tilth for other land in preparation for Mangolds, Carrots, and other root crops. Although the land may have been partially tilled in the autumn either during harvest and fallow-ploughed to lie during the winter months, yet it should now be immediately stirred by the steam cultivator with the points in use (not shares), for this will lift the couch and weeds out effectually. Before this work is commenced by steam power it should be carefully looked over to ascertain whether the couch or twitch in the land is plentiful or not, for in the event of there being only a bunch or lump here and there the cultivating by steam power may often be saved. If but little couch is to be seen this may be forked out by hand labour by the women, which work may cost a few shillings per acre, and save the horse labour. In all cases where the land has been autumn-tilled and fallow-ploughed for winter the actual work which the land requires is but very little, either for planting with Potatoes or early root crops; in fact, the spring labour is frequently injurious if the season proves dry, because of the loss of moisture which may be required to insure the seeds germinating and forward their growth. All Barley should now be sown, and in case of roots being fed off the seeding should be carried on close up to the fold where the sheep are feeding.

We must call the attention of the home farmer to the necessity of employing steam power, either by hiring or for use as part of the cultivating power of the farm. We have frequently heard objections to the expense of steam cultivating on farms where horse labour is employed; but it cannot be made a matter of choice, for both are necessary when the season is dry and fit for tilling the land; therefore, steam power supplemented by horse labour is always advisable, whether it occurs in the Lent corn seed time or during the preparation, &c., for roots. It is also advisable frequently even in haying time and harvest, for if the weather is favourable for tillage it must be done; for although it may incur a present expense it avoids a future perhaps heavier outlay, besides the loss of season or seed time. In this way we recommend that the autumn tillage of all land not in crop should be effected, notwithstanding the preparation and sowing of the land for Wheat may be going on; and if the tillage power on

the farm is not equal to do both simultaneously the farm cannot be expected to yield fair commercial profits in return. Nor do we expect that the opportunities for work can be circumscribed like that of the tenant farmer, who would often do better than he does if he had the means and capital employed for the purpose, making good an observation we have often used—that there are more bad farmers for want of means than for want of brains.

We have recently received a list of prices for Oats and Barley, &c., from a seed-corn merchant of whom we purchase, and although those who turn their attention to the growth and sale of the best selected stocks of seed corn charge very high for them still it answers our purpose, for by sowing a few acres of high-priced seed corn we in the following year are provided with seed of high quality and purity, which we can seldom secure for certainty in any other way. We are alluding to the Victoria White Oats, the selected Early Blossom, Improved Waterloo, and White Tartarian, also Black ditto. These are all valuable varieties, of which it is of the highest importance to secure pure samples. In referring to Barleys we have offered to us the Improved Golden Melon, Peerless White, and Beardless White, together with Improved Chevalier. We can also recommend the Improved Goa summer Tares for present sowing and also further on, so that the green fodder may come for use in succession in accordance with the requirements of the horses, sheep, and other stock during the summer.

Hand Labour.—The setting-out and marking of oak timber for sale should now be done, as the trees will be likely to bark or strip early this year. The Elm, Ash, Beech, &c., should have been cut before this, but it cannot now be further delayed without injury. Both men and women will still be required in work connected with Potato planting, and the land which was autumn-tilled comes to hand admirably this year where it is clean; if not quite so the women go before the ploughs and fork out any bunches of couch, and this completes the preparation in a workmanlike manner. Men are employed in planting Cabbages with the spade, which plan we have practised during the past twenty-five years, for whether the season is dry or wet the spade-planted roots will always grow better than those put in with the setting stick. We notice with much pleasure that a prize of ten guineas has been awarded to a Mr. Peter Kilpatrick by the Highland Agricultural Society for an excellent essay on the planting of Cabbages, preparation of land, manures used, and weight of crop, and we were further gratified to find that planting the roots was done by the spade in accordance with the plan formerly used and recommended by us.

POULTRY AND PIGEONS

POULTRY MANAGEMENT.

WE publish the following as a specimen of the letters which we constantly receive asking questions in respect of the management of poultry—

“Would you kindly let me hear if the old-fashioned idea of feeding fowls well when laying makes them lay for a short time, but sooner eluck than if more sparingly fed, and so make them lay longer? I give one quart crushed Indian corn per day to ten hens, with hot potatoes and indianmeal as much as they will eat going to roost. They are laying now, and to keep them doing so I am told to take all corn away. Is this advisable? They weigh 6 lbs. just now.—C. E. C.”

We have on several occasions particularly dealt with the subject, but as doubtless each year brings new readers we answer the letter fully.

Fowls when actually laying require to be well fed, as there is then a more severe drain upon the system. The quantity of food must, however, even then be so calculated as only to keep them in good condition, and not to cause them to put up fat. A great deal also depends upon the quality of the food given. Our correspondent feeds on crushed Indian corn in the morning apparently, and indianmeal mixed with potatoes at night. This food is quite unsuitable for laying fowls. Indian corn is the most fattening food that can be given, and contains a smaller proportion of gluten than almost any other grain. It should only be used sparingly with fowls of any sort, and not at all with Asiaties. The soft food should be given in the morning. Hot potatoes mixed with about double their bulk of coarse middlings, or pollard as it is called in Ireland, makes good feeding for the winter season. Later on potatoes should be discontinued except for an occasional morning.

Grain should be given as the evening meal. Oats, barley, buckwheat, and ordinary wheat, all make good feeding, and it is a good plan to use first a sack of one and then a sack of some of the others for a change. Both for the morning and evening meal only as much as the birds will greedily eat should be given, none being left to be about under their feet.

Our correspondent does not say of what breed her birds are, so

that the statement as to weight is not much of a guide in answering her question. If they are of a large breed, such as Asiaties or Dorkings, the weight would be about right, if of a smaller breed they are probably overfat; but how the birds handle is a better guide as to this than mere weight.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Friday, March 3rd. There were present the Hon. and Rev. F. G. Dutton in the chair, the Earl of Winterton, and Messrs. R. A. Boissier, O. E. Cresswell, A. Comyns, A. Darby, H. R. Dugmore, S. Lucas, C. F. Montrésor, and L. Norris.

ELECTION OF MEMBERS.—Mr. J. Rodbard Rodbard of Aldwick Court, Wrington, Somerset, was elected an honorary life member of the Club.

The following new associate was elected—Allen Silver, Long Melford, Suffolk.

ANNUAL ACCOUNTS.—The annual accounts for 1880 were examined and approved. They showed a balance in hand as on the 31st December of £120 15s. 4d.

STANDARD OF EXCELLENCE.—A distribution of the work of collating the draft forms of Standard filled in by fanciers amongst the members of the Committee was made, and directions given as to sending out draft forms for one or two varieties which had in the first instance been omitted.

DATE OF MEETINGS.—Some alterations were made in the dates fixed for meetings of the Committee, and the following are now the correct dates—Friday, March 31st; Wednesday, May 3rd; Monday, June 5th; Wednesday, July 12th; Friday, August 4th.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, London, W.C., March 6th, 1882.

PROFITABLE POULTRY-KEEPING.

MY motive for having in 1881 over sixty coeks and hens in my yard 16 yards long by 3 wide, was to see if I could keep such a quantity in health and comfort. Upon this I am satisfied. My shed now contains twenty-four hens and two coeks; six of these are pullets not laying. Their roosting house is 12 feet by 4, fitted with nests. There is a wood erection at the end of the yard, with a feeding slide for dry grain, and for comfort on wet days, and the yard is kept well bedded with straw. Plenty of pure spring water is supplied through a lead pipe and spigot. They have also a large sugar hogshead cut through the middle, and well supplied with dry ashes and lime for a dust bath.

Poultry in confinement must have animal food. My week's supply is before me. First, refuse from the slaughter house, nett weight 14 lbs.; to this is added 14 lbs. ground Indian corn, 3½ lbs. bran or sharps, 2 ozs. ground black pepper, and 4 ozs. Epsom salts. The animal material is placed in an eight-gallon tin pot with all the kitchen refuse, and the value of one pennyworth of Swedish or any sort of Turnips boiled on a close range to a complete pulp, and poured boiling over the meal, bran, &c., in a tub, and then taken as required when cold. If wanted warm a little water from the boiler is added, but I certainly prefer my birds to have cold meat, and as much as they can eat. I also scatter some dry grain amongst the straw so that they may scrape about.

By this treatment my birds give me eggs which cost about a groat the dozen, and the straw when made into manure with the brushings of the hen house gives me ample manure with soot from the close range for a beautiful and well-stocked garden of flowers and vegetables of about a third of an acre. A few hens may be kept at no expense farther than the attention. In the pages of our largest circulated metropolitan papers I have shown the great paying qualities of poultry; but to convince some without the help of the Legislature and an Act of Parliament is hopeless, although there are millions of money paid in these islands for eggs yearly, and which can be raised at home on any well-conducted farm at a profit.—OLD FARMER.

THE INCUBATOR LIBEL CASE.

THE long-looked-for action for libel which arose out of the incubator contest at Hemel Hempstead came on for trial on Thursday and Friday in last week in the Queen's Bench division before Mr. Justice Denman and a special jury. It will be in the recollection of our readers that in the autumn of 1878 a contest of incubators was organised at Hemel Hempstead in connection with the Poultry Show. The principle upon which it was proposed to hold the contest was, we believe, in the first instance, that each competitor should send a skilled operator to manage his incubator. This plan, however, was at the request of some of the intending competitors abandoned, and it was arranged that all the incubators should be managed by one person who had no previous knowledge of artificial hatching. Several competitors entered, amongst them Miss May Arnold, as the English agent of Voitellic's incubator, and Mr. Thomas Christy, the now well-known maker of hydro-incubators. The plaintiff, Mr. F. G.

Twigg, the resident engineer of the Hemel Hempstead Waterworks, was entrusted with the charge of the incubators.

Through an unfortunate mistake as to the date at which the contest was to commence, Miss Arnold neglected in the first instance to furnish full instructions as to the management of Voiteillier's incubator. She had some time previously sent to the Rev. H. Peel, one of the Secretaries of the contest, Voiteillier's book, which contained printed directions. These Mr. Peel had translated as instructions for Mr. Twigg in working the machine. As is now a matter of history the Christy incubator distanced all competitors, while the Voiteillier did not hatch out one chicken. As Voiteillier's has in other hands produced very successful results and is largely used in France, Miss Arnold was apparently much disappointed at its failure at Hemel Hempstead, and inclined to attribute it to some want of fair play. There was considerable correspondence on the subject at the time, but it ended, as such correspondence usually does, without any definite result being arrived at.

At the Hemel Hempstead Show of 1879 a similar contest was organised. This was upon a different basis, as each competitor was required to send a representative to work his incubator. Again, this year there were several entries, but with the exception of Mr. Christy none of the former competitors were present; the other exhibitors besides Mr. Christy being Messrs. Howell, Watson, and Cashmore. The room in which the contest was held was upon this occasion placed under the care of Mr. Twigg, who was entrusted with the keys, and by whom the competitors were to be admitted three times each day for the purpose of attending to their incubators. Messrs. Howell, Watson, and Cashmore either attended personally or sent representatives to manage their incubators, but Mr. Christy preferred that his should be managed by some person in the neighbourhood previously unacquainted with incubator management, and a Mr. Durrant was accordingly selected as his representative. The contest went on smoothly enough for some time, but, as it afterwards appeared, there was some little unpleasantness arising out of the alleged prompting by Mr. Twigg of Mr. Christy's representative. At the close of the contest Mr. Christy was again found to be the winner, although on this occasion the other competitors were more successful in hatching than the unsuccessful ones in 1878 had been.

A protest was signed by the unsuccessful exhibitors and handed to the Committee, but this was overruled and the prize awarded to Mr. Christy.

Miss Arnold, though not herself an exhibitor at this latter contest, seems for some reason to have taken up the cause of the unsuccessful exhibitors, and shortly after the contest she published as an advertisement in this Journal and elsewhere the protest with the signatures of the unsuccessful exhibitors attached. From subsequent correspondence it appeared, and it was at the trial admitted by Miss Arnold, that she had no direct authority from the protestors for so publishing their protest.

At a meeting of the Committee of the Poultry Club held at the Crystal Palace during the Show of 1879, Miss Arnold attended and made a personal statement of certain alleged causes of complaint against the management of the Hemel Hempstead incubator contest. The Poultry Show had been held under Poultry Club rules, but there seemed to be some uncertainty as to whether or not that brought any question arising in reference to the incubator contest within the jurisdiction of the Club. This doubt was, however, set aside, as it was alleged that the conduct of some members of the Club was in question, and that that would be sufficient to give the Club jurisdiction.

Miss May Arnold was requested by the Committee of the Poultry Club to put her complaint into writing. This she did subsequently, and it was upon that complaint that the present action was based.

The plaintiff relied upon the following paragraphs as libellous—

"The trials have been rendered fallacious, and the Hemel Hempstead Committee foiled, as well as the competitors, by the defective moral sense of an individual concerned (F. G. Twigg), and its consequences. I do not assert of this man that he has felt himself to be guilty of what he has done and said, or he would scarcely have criminated himself; but that, from defective moral education or otherwise, he has so acted as to prove himself wholly unfit to be in any charge, much less in principal ones, in connection with what the Committee intended to be important comparative trials; while from the public belief that this plan of the Hemel Hempstead contests was a sound one, the honest scientific labour of one inventor after another has been unduly affected to its hurt . . . F. G. Twigg went afterwards to the manufacturer of the hydro-incubator, which alone he had worked with any success, for a doncenr, and received two guineas."

The matter was several times considered by the Committee of the Poultry Club. The Rev. H. Peel, who was at that time Treasurer of the Club, and *ex-officio* a member of the Committee of the Club as well as Secretary of the Hemel Hempstead contests, received in common with the other members of the Committee a written copy of Miss Arnold's letter of complaint. To this he subsequently sent an answer in writing.

The consideration of the matter by the Club was adjourned; and prior to the meeting of the Committee at Oxford in June, 1880, when the matter was finally dealt with by the Club, Mr. Peel had Miss Arnold's letter containing the alleged libel and his reply thereto printed. Copies of this print were forwarded by Mr. Peel to the Secretary of the Poultry Club, and apparently also given to members of the Local Committee at Hemel Hempstead, and in this way the fact of Miss Arnold having written such a letter became known to the plaintiff, who shortly afterwards commenced the present action.

Mr. Charles, Q.C., and Mr. Channel were for the plaintiff. Mr. Willis, Q.C., M.P., and Mr. H. Smith for the defendant.

An attempt was made at an early stage of the proceedings to effect a compromise, but this was unsuccessful. The plaintiff went himself into the box, and stated that the present of £2, given to him by Mr. Christy the successful competitor after the 1878 contest, was so given with the knowledge and consent of the Committee. He denied that he had during the 1879 contest constantly prompted Durrant, but admitted that on one occasion when Durrant had apparently forgotten to replace the drawer of eggs in Mr. Christy's incubator, he had drawn his attention to the fact. This, however, was done publicly, and after consultation with the clerk who was present for the purpose of registering the temperatures.

The other witnesses for the plaintiff were the Rev. H. Peel, Mr. Christy, Mr. O. E. Cresswell, as the then Secretary of the Poultry Club, Mr. Leno, who acted as judge in the contest, and one or two members of the Hemel Hempstead Committee.

For the defence, Miss May Arnold and Messrs. Watson and Howell were the principal witnesses. It appeared from the evidence of the two last-named witnesses, that in addition to the admitted incident of the plaintiff giving Durrant a reminder as to the egg drawer, there had been one or two circumstances which might give rise to suspicion of unfair dealing. Mr. Watson stated that, suspecting that the egg drawer had been taken out of his incubator in his absence, he placed a bit of wood in such a position that it would fall if the drawer were touched, and that on several occasions he found the wood had so fallen. On one occasion some gallons of water were alleged to be missing from Mr. Howell's incubator, and upon still another the regulator of Mr. Cashmore's had been meddled with. This latter incident was explained by the plaintiff as having been caused by a cat, which was immediately upon its discovery killed by him.

Mr. Howell in his evidence attached much weight to the fact that the plaintiff had drawn Durrant's attention to the circumstance that he had left the egg drawer out. This elicited the question from the Judge as to whether he (Mr. Howell) would have liked to have won the contest through the accidental omission of Mr. Christy's man to replace the egg drawer in proper time, and the comment that if he (Mr. Howell) would like so to win a contest it was more than the Judge would like to do under similar circumstances. The effect of Mr. Howell's evidence was also considerably weakened by the production of a letter written by him immediately before the close of the contest, in which he did not express any disapprobation with the management of the contest, and spoke despairingly of his own chances of success.

The defendant claimed that the communication to the Poultry Club was a privileged one, but any argument on this point was reserved until after the verdict of the jury. The defendant also pleaded justification.

The jury found—first, that the publication was a libel; secondly, that no justification had been proved; thirdly, that the defendant was actuated by express malice; and fourthly, that the damages were £50.

As privilege is only available as a plea in the absence of express malice, the finding of the jury rendered any argument as to this point unnecessary, and a verdict was accordingly entered for the plaintiff with £50 damages.

REDCAPS.—Several correspondents have written to inquire where these birds can be procured. Will any of our readers who have them for sale make the fact known through our advertisement columns?

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
February.		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
March.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun. 26	29.151	51.4	50.0	S.	44.1	56.2	49.2	78.2	47.8	—
Mon. 27	29.125	48.9	45.6	S.W.	44.8	53.0	44.4	83.5	39.6	0.126
Tues. 28	29.584	41.3	49.4	E.	44.8	49.5	39.4	56.3	40.6	0.377
Wed. 1	28.970	46.7	43.7	W.	44.8	52.6	47.0	91.6	41.7	0.166
Thurs. 2	29.315	44.2	39.8	S.W.	44.1	50.7	40.3	98.5	36.4	0.080
Friday 3	29.411	39.9	38.4	E.	43.0	47.7	34.7	89.2	28.3	—
Satur. 4	29.665	32.4	32.3	N.W.	41.6	48.9	28.5	82.5	25.2	—
	29.317	43.5	42.0		43.9	51.2	39.5	82.8	37.1	0.749

REMARKS.

26th.—Wet morning, high gusty winds; fine afternoon and evening.

27th.—Fine at first, showery afterwards.

28th.—Dull damp morning; fine in middle day; wet evening.

1st.—Squally, high wind and showers; bright sunshine at intervals.

2nd.—Squally, rough day; hail at 1.45 P.M.; heavy shower of hail and sleet at 4.15 P.M.; bright sunshine at intervals.

3rd.—Fine, bright, and cold.

4th.—Fine, hazy, and dull at first.

Temperature almost identical with last week, and considerably above the average.—G. J. SYMONS.



16th	TH	Royal Society at 4.30 P.M.
17th	F	
18th	S	
19th	SUN	4th SUNDAY IN LENT.
20th	M	
21st	TU	
22nd	W	Society of Arts at 8 P.M.

MUSTARD AND CRESS FOR MARKET.

IN most English gardens attention is given to providing a supply of Mustard and Cress for salads; and being easily and quickly grown, and further possessing very wholesome qualities, they are within the reach of all, even of those with most limited means or accommodation for plant or vegetable growing. Still, very few residents at a distance from London have any idea of the extremely large quantities of this small salading grown to supply the demands of the metropolitan markets. It is only by visiting the gardens where its culture is made a speciality, or by an early morning journey to Covent Garden Market, that anyone unacquainted with the facts would be able to form the slightest conception of the extent of the trade in such apparently insignificant productions. One reason for this is that Mustard and Cress require to be quickly grown, quickly sold, and quickly conveyed to the consumer, as it soon becomes tough and tasteless after cutting; and the consequence is that outside the markets large quantities are seldom seen, as the retailers purchase only what is ordered, or as much as they consider will meet the demand for the day. The supply is thus very generally distributed; and though few shops have more than a dozen punnets, there is scarcely one in a respectable neighbourhood that does not require some daily. But for this fact it would seem almost incredible that so large a quantity as some growers raise could be consumed while fresh.

The chief season for Mustard and Cress is during the spring months, at which time a thousand dozen punnets are brought to Covent Garden Market daily by the chief growers, and one alone sends from a thousand to fifteen hundred dozen punnets per week. The supply is maintained in a varying degree throughout the year, reaching its lowest in November, December, and January, especially in severe or very wet seasons. It is, however, a constant crop, and one grower informs me that his supply would average five hundred dozen punnets per week throughout the year; and judging by the space he devotes to its culture the quantity does not seem to be exaggerated, though the results are somewhat astonishing when we consider the money value that is realised.

The price per dozen punnets varies from 1s. to 2s.; but as less than the first-named price has sometimes to be taken the average might be fairly considered to be 1s. the dozen. Thus five hundred dozen per week would give a total annual amount of £1300; and taking the profits at the very low estimate of 10 per cent. we have a yearly income of £130 for Mustard

and Cress alone. From what I have seen and can judge of the labour and expense incurred in the production I should, however, think the profits would be nearer 20 than 10 per cent. The result appears almost incredible, and considering that even those market gardeners who grow the largest quantity of small salad also have several other crops, especial attention being paid to Mushrooms, this form of market gardening seems to be a rather satisfactory one. It must be remembered that these particulars only refer to those who grow the largest quantities, and less than half a dozen almost entirely supply the demands of Covent Garden. In small quantities it would probably not pay for carriage, and most of those mentioned as making a speciality of small salading have waggons which convey that and other produce to London and return laden with manure. The grower must also be conveniently situated as regards distance from the chief markets, or the expense would be considerably increased and the quality of the salad greatly deteriorated if it remained closely packed for too long a time.

It may be of interest to some readers to know the methods of growing this salad adopted by market gardeners around London; and as I have recently had an opportunity of visiting several of these establishments a few observations upon the subject will give an idea to those who are desirous of commencing the culture on a large scale. It may be premised that though some of the best gardening in the kingdom is to be seen in market growers' establishments, yet there is generally so much trade rivalry and jealousy that a reluctance to communicate any details of culture very generally prevails. Some who have been successful imagine they possess a secret essential to the satisfactory production of any particular crop; yet after all they only act upon general principles, and in half a dozen different establishments as many different systems may be seen in operation, with results that vary but very slightly, and are in a pecuniary point of view equally satisfactory. So it is with the crop now under consideration. One man who has been very successful in the culture of Mustard and Cress, and who sends a very large quantity to market, considers that his progress is due to certain cultural details which he would not communicate on any consideration, and he is under the impression that other growers are continually endeavouring to ascertain these, even going so far as to offer some of his men very high wages to obtain their services; yet this does not appear necessary, for all growers I have seen have equally good crops.

One highly important matter is to obtain good seed, as unless this is done the crops will come irregularly, and it will be difficult to obtain a constant reliable supply. It may be here mentioned that very little of the true Mustard (*Sinapis alba*) is grown, the substitute employed being Rape (*Brassica Rapa*), which is preferred chiefly because it has a milder flavour and the young stems blanch very readily, being also free from the small hairs which the stems of Mustard bear. Cress (*Lepidium sativum*) is grown in less quantities than the Rape, as it is less in demand, and, further, it is rather more trouble to raise than the other, as most gardeners know. The wholesale prices per bushel average about 12s. for Rape and Mustard, and 16s. for Cress, though samples of superior quality realise higher prices. Another point that especially needs attention is sowing the seed very thickly (in the case of the Rape the seeds are placed as closely as possible), as that not

only insures the blanching of the stems, which adds greatly to the value of the crop, but it also simplifies the packing, as when the stems are so close together they are cut and placed in the punnets quickly and evenly. A light soil or compost is invariably employed, but the best results appear to have been produced by old Mushroom-bed manure not too much decomposed, which is sifted or screened and placed in beds 3 or 4 inches deep quite level, moderately firmly, and if at all dry it is thoroughly watered before sowing the seed. Almost any kind of light soil is suitable, and old tan was used at one time very largely for the purpose; indeed there was one grower at Vauxhall some years ago who employed that entirely. It is also said that the sawdust which is now used in some stables is well adapted for Mustard and Cress; but it is too "strong" when first received from the stables, and requires storing for a time or to be drenched with water to remove some of the ammoniacal compounds with which it is saturated. An important object is to obtain salad free from grit, and on this account the old Mushroom-bed manure seems to be especially useful, as it forms a moist nourishing medium, in which the rootlets can readily extend. The seed not being covered with soil also aids in insuring a clean crop, and the surface being rendered as fine and even as possible, the produce is obtained of equal height, which also adds considerably to the value of the crop, and facilitates the cutting and packing in punnets.

These particulars especially apply to the winter and early spring supply, which has to be raised in heated houses or frames. In the summer beds are prepared outside. Where the early supply receives much attention small span-roof houses or lean-to frames are devoted entirely to the purpose, as are the inside borders of late vineries. In the former case the houses are about 9 feet wide and 6 feet high, and vary in length from 30 to 60 feet, but of course the length is of little importance. They are heated with 2-inch or 2½-inch pipes, one row extending round near the sides. The beds are 4 feet wide, thus leaving a space of a foot for a path down the centre, which are edged with narrow boards 3 or 4 inches deep on each side, and next to the pipes also. The frames are about 5 feet wide, with a pipe along the front. In the case of the vineries the prepared soil is simply spread on the surface of the border to the required depth, and the seed is sown, sometimes being pressed slightly into the soil with a flat piece of wood or something similar. A good supply of water is then given, and the seed is covered with ordinary garden mats. These are only removed when it is necessary to supply water; and this must be carefully attended to, as little is given after germination is well advanced, or decay is likely to result. The mats are kept on during the day until the young plants have grown an inch or two, when they are removed to permit the seed leaves to acquire a bright green colour—a point of some importance in combination with well-blanching stems.

In from eight to twelve days the crop is ready for cutting—*i.e.*, when the stems are about 4 inches high, and to effect this a peculiar but simple knife is used. This has a straight flat blade like an ordinary dinner knife, but not rounded at the end, about an inch broad and a foot long. Near the handle is a crank turned upwards at right angles to the blade like a bricklayer's trowel, and the end is again turned at right angles, but parallel with and away from the blade; this is inserted in the handle just like the trowel. With this instrument the salad is cut much in the same style as mowing with a scythe, the blade being flat on the ground. One sweep of the knife cuts enough or more for a punnet, and is taken up with the hands and placed in evenly, so that it appears almost as it had grown in it. Some practice is required to effect this satisfactorily, and skilful experienced cutters can gather and pack over a thousand punnets a day. The punnets are then packed in boxes and conveyed to market in vans. The chief labour is removing the old material from the beds, which has to be done after every crop; this is stored away in a heap for several months and then incorporated with fresh material. Where the compost is purchased this is a rather expensive item, and one grower, I am informed, pays 2s. 6d. a load for old Mushroom-bed manure. In the best-managed establishments, however, Mushrooms are grown in addition, and that

outlay is thus to some extent reduced. It should further be added that both houses and frames are constructed in the most economical manner possible, utility and cheapness being the chief objects.

As to the space required, some idea may be gathered from the fact that the punnets are about 6 inches in diameter, and I should think at a safe estimate a square foot of a good crop would fill two punnets of Rape, a little more Cress being required. Thus a heated frame 60 feet long with a bed 5 feet wide would yield about fifty dozen every fourteen days throughout the year, as the lights could be removed and the heat discontinued as the season advanced. Taking twenty-five crops in the year at the rate of 1s. per dozen would give a yearly total from one frame of £62 10s.; or to put it in another way, the yearly return per square yard of ground occupied would be over £1 10s., a quarter of an acre so cropped giving £1815 per annum.

Although Mustard and Cress seed differ in cost to the extent of 4s. per bushel, there is not much difference in the results to the grower. For instance, a bushel of Mustard or Rape is sufficient to sow 256 square feet of bed, the same quantity of Cress being sufficient for 384 square feet; but for the same cost as the Cress 340 feet can be sown with Mustard. The ultimate results thus vary slightly, for though a somewhat higher price is obtained for the Cress, yet smaller quantities are required, and there is more uncertainty regarding the crop. As a guide to those intending to grow this salading it may be stated that a pint of Mustard seed is required for each 4 square feet, and the same amount of Cress for each 6 feet. From about 25 to 30 per cent. should be deducted from the estimated returns for the cost of the seed. Thus, to provide the five hundred dozen per week mentioned above between six and seven hundred bushels of seed are used yearly, at a cost of something over £400, or about one-third of the returns. The punnets are very cheap, but even for them, where such large quantities are grown, £2 or £3 per week is said to be the average outlay. It should be stated that some growers soak the Rape seed in water before sowing to hasten the germination.

Such are a few particulars concerning a very simple crop, which, if judiciously managed, can evidently be made more profitable than some others apparently of far more importance. The prices and quantities have been chiefly furnished by reliable market salesmen, and the information obtained from several different sources agrees in the main facts. Further, to avoid misleading statements as much as possible, the lowest figures have been given in each case.—L. CASTLE.

VINES AT LONGLEAT.

(Continued from page 190.)

A GLEAM OF LIGHT.

It was now plain that the soil was deficient in one of the essentials of fruit-production, and that one proved to be just the one I had thought was particularly abundant. Here, then, is shown the necessity of calling in the aid of a chemist or geologist, or perhaps both in doubtful cases. There is a hill on one side of the garden not more than half a mile away, and there is a similar hill on the other side not more than two miles distant, both of which produce excellent lime. Surely, thought I, there can be no deficiency of calcareous matter between these two places, and to add lime to a soil which already contains more than a sufficiency will be taking up room which may be more profitably given to some other ingredient. I also had the opinion of two good men on the subject, one of whom was a very celebrated Grape-grower, and the other occupies a prominent position in the horticultural world. The opinion of both these gentlemen agreed with my own, and a test was not deemed necessary.

However, suspicion began to dawn in the minds of both my foreman and myself about the same time that

there might possibly be a deficiency of lime after all, and the idea had no sooner been allowed to enter my head than it was confirmed by at least half a dozen of the plainest possible proofs; but so blind had I been to them before that I should have treated any such idea with ridicule. Well, "there are none so blind as those who will not see;" and very possibly, but for the fact of my supply of turf being cut off, I should not have had the film taken off my eyes in this respect for some time longer.

Some of the evidences of the scarcity of lime are that the water from the springs is peculiarly soft; the soil when handled for potting does not make the hands rough; the kernels of stone fruits are often imperfect; if seed is produced on a patch of ground, that particular patch may be pointed out for years afterwards as comparatively barren; there is very little incrustation in the inside of pipes, boilers, &c.; Rhododendrons grow well, and Box edging does not.

All these evidences are plain enough to anyone with open eyes. I generally am credited with keeping mine open, but in this particular case I was clearly stone-blind. A follower of the old school of Grape-growers would not have made this mistake. He makes up his mixture everywhere in the same way—so much turf, so much manure, so many bones, so much lime rubbish, and special quantities of certain other ingredients more of imaginative than real value; and then, after waiting a few years, whatever may be the nature of the soil surrounding him, if he uses ordinary attention he, as a matter of course, produces ordinary Grapes without any special trouble. His more advanced or more favoured brother adds a portion of similar material to his border every two or three years, and of course makes more sure of continued success; but anybody can or ought to be able to grow average Grapes under the last-mentioned conditions, whether he be a gardener or not. To grow them so as to make them pay for growing or to cause a sensation in the fruit-growing world is another thing.

When smarting under one of the disappointments just detailed I had a visit from two celebrated Grape-growers. "Oh! I am glad to see you," I said (though I do not really believe I was), "I want to ask your advice." Well, they being great personal friends, gave me the best advice they could under the circumstances. It is true they did not quite agree as to the plan to be immediately followed, but they were thoroughly agreed that my Grape-growing fame was over till I rooted out these Vines and made a fresh start. "How could I expect Vine roots to flourish in a border which was as hard as a turnpike road? To get some of them even to live I must break up the surface and let the air into it." I did not take their advice. As I had already got over the greater part of my trouble, and felt sure I was now on the road to success, their gloomy forebodings did not take much effect on me, and I repaid my comforters the following year by sending them a challenge, promising to allow them to be judges, but it was not accepted.

APPLYING THE REMEDY.

It was while the thinning was going on that the possibility of a deficiency of lime was entertained. The flowers did not set well, and of those which had apparently set we did not like the shape of the berries, many of them being too round and giving a suspicion

of faulty stoning. To wait till the autumn before applying a remedy would be to lose another season. Let us apply it at once while the foliage will have a chance to utilise it. But it would need great care; the roots must not be disturbed, and nothing must be brought into the house which would injure the skin of the berries or the tender foliage. Some new lime was procured, was slaked in the ordinary way, and allowed to cool. Then more water was applied to it, making it about as moist as soil is when it is in a good condition for potting purposes; and to make sure that none was left unslaked it was spread out thinly, and the last water was applied from the rose of a watering pot. It was now taken into the house and spread all over the border fully half an inch thick; the crust of the border was then broken with a fork about an inch deep, and it was well watered, giving a little in a place at first, then coming back and giving more several times till the usual quantity of water had been applied.

Of course the lime did not all disappear at this watering, and we merely damped it now and then between waterings to keep it from blowing about. When it was nearly all gone from the surface we gave another similar application, so that every part of the border which contained roots had in the course of the summer a full inch of lime. In the autumn, as soon as the fruit was coloured, we dug a trench about 2 feet wide just outside where the new soil had been applied before, and we mixed some wood ashes and some lime (in the same state as that which had been applied to the surface of the border) with the old soil and returned it, trampling it down as hard as possible, and waited confidently for the result. I am happy to say we were not disappointed. I need hardly add that the Vines have not had a monopoly of the lime which has been brought into the garden since that time, and it has acted everywhere almost like magic.—W. TAYLOR.

(To be continued.)

PLANTING POTATOES.

THE time is again at hand when this important work must be done. In some gardens many early Potatoes have already been planted, but the bulk of the crops will yet require attention. Careful planting is always the best: of this there can be no doubt in the minds of those who have watched the results of different modes of planting. Dry and suitably manured ground are two important points to secure at the beginning. By waiting and taking advantage of the weather a proper state of the soil may be secured by all. But as regards the manure some difficulty is occasionally experienced. We are not ill to please in Potato manure, as with some we use yard dung, and with others hardly anything but decayed leaves, while others have only soot, salt, and ashes. All depends on the nature of the soil; but we never expect a satisfactory crop of Potatoes from poor soil. To think that a piece of ground which is not good enough for some other crops, such as Cauliflowers and Peas, will do for Potatoes, is a mistake; Potatoes might be produced, but a paying crop need not be expected. Ground which has been heavily manured for previous crops may not want a large addition for Potatoes, and perhaps a sprinkling of soot or salt would be sufficient. These may be usefully applied to Potato land; they are both fertilisers, and apart from this they cleanse the soil of worms and grubs, and this in itself is a great consideration.

In preparing for planting ordinary crops the manure may be applied first, then digging the ground deeply, and planting the Potatoes as the work progresses. Eighteen inches between the rows and a foot between the sets are suitable distances for some dwarf varieties, but with others both of these distances will have to be increased 6 inches, and Magnum Bonums may require even more than this. Very close planting is the cause of the tubers being small. When the tubers are grown for exhibition they can hardly have too much room, 3 feet each way being no unusual distance

for them. At this rate the same quantity may not be had from a given space as from closer planting, but the quality will be superior, and when Potatoes are planted so far apart it is always a good plan to have some green crop between.

When a large number of stems are formed from one tuber the produce will generally be small, and for this reason some Potato exhibitors cut all the eyes out of their sets before planting except one or two, and others thin the growths as soon as they are seen above ground. In this way only two very strong stems come from each root, and the produce is increased in size. It might not be wise to treat all Potatoes in this way, but the quality of many might be improved if the weakest of the stems were removed early in the season.

Respecting the depth to plant Potatoes, I think 3 inches from the surface is very suitable as a rule. All ours are planted in this way, and I see no reason to change. Of course they are all earthed up further on in the season, so that any tubers formed close to the surface are covered and not allowed to become green. Were earthing-up not practised we should plant the sets 6 inches from the surface; in fact, this would be necessary to keep the tubers tender.

At this time it is impossible to keep the seed Potatoes from starting into growth. If the place they are in is close and dark the shoots will soon become a foot or more high, and these growths are almost sure to be broken in planting; but when they are so tall as this it is a good plan to remove the largest and allow only the short strong shoots to remain. These will make the best stems in the soil, and they will make robust growth immediately. All the growths, however, must not be removed; to do this at planting time would cause the crop to be some weeks later than it would otherwise be. In planting it is rarely tubers of kidney varieties are cut or reduced, but large round tubers are generally made into two or more sets, care being taken that each has about two eyes. It is generally a good plan to cut up the seed some days or weeks before planting time, as this allows the cut part to heal, and it is not then so liable to decay prematurely.

Besides planting as digging goes on there are other methods. Where the soil is ready turned, a thick blunt-pointed dibble may be used to make holes, and in each of these a set may be dropped, filling the hole again from the surrounding soil. At other times we have made holes with the spade, and the sets were then placed in position and covered. In planting in this way a good chance is given of placing any artificial manure or soil about the seed, and for "fancy Potatoes" this is a favourite method.—A KITCHEN GARDENER.

EUPATORIUM (HEBECLINIUM) IANTHINUM.

AMONGST the many useful plants grown for greenhouse and conservatory decoration, few are more worthy of consideration than the above. Plants in flower can now be counted easily by the dozen; forced bulbs, Lily of the Valley, Primulas, Cinerarias, Acacias, Azaleas, Camellias, and a host of greenhouse plants, besides Orchids and choicer stove plants, all contributing to the display. But the above flowering plant may be seen in nearly every garden, and I wish now to draw attention to this Eupatorium, which is by no means common, though so useful and showy. The colour is a very distinct shade, one that is not often seen, and one that is much needed. The individual flowers are exactly like the common Ageratum in shape, but are much larger and brighter in colour. The plant is easily grown and easily propagated.

Cuttings may be taken now and inserted singly in small 60-size pots plunged in a little bottom heat. After the cuttings are rooted, which they will readily do, they should be removed to a more airy situation. When the young plants have made some growth they should be transferred into small 48-size pots and grown in a cool stove temperature through the summer without being stopped. The plants will produce fine single trusses of flower next year, which can be employed in a variety of ways. After the plants have flowered they should be cut back, and placed in large 48-size pots, and grown in the same manner as the first year. The second year these plants will produce four and five good trusses of flower. After they have ceased flowering for the second time they should again be cut back and repotted, employing rich soil each time. Plants four and five years old will produce as many as eighteen or twenty large trusses of flowers.

In growing this valuable Eupatorium a little care should be exercised to avoid coddling them, for if grown in too high a temperature they become drawn and worthless. In the house where my plants are wintered the temperature rarely exceeds 55° by night, with a rise of 5° to 10° during the day. The earliest plants will commence flowering about the middle of February,

and in a suitable house will remain in good condition for at least ten weeks. In conclusion I may add, that as this is one of the strongest-growing species, it requires very rich turfy soil, and when the flower trusses are formed copious supplies of water are necessary, with occasional supplies of liquid manure.—W. K.

PLANT LABELS.

EVER since I commenced the culture of herbaceous plants and Roses I have felt the necessity for a good garden label, and consequently have read the remarks of Mr. Wilson and Mr. Wolley Dod with great interest. I like the idea of the use of paraffin much, and have frequently used it for waterproofing wood, though its value as a paint for labels never occurred to me.

Allow me to suggest to those who intend trying it that the great secret of success in its use is to apply it very hot—as near its boiling point (about 370° C.) as possible; and as at this temperature the bristles of an ordinary brush would be destroyed, the best way to coat the tallies will probably be to dip them into the molten wax for a few seconds with the help of a pair of pincers.

I have had a label in use for my Roses during the last two years which has given me entire satisfaction; but, unfortunately, it is not a cheap one, and it requires a special writing fluid. It consists of a thin slice of bone some 2 or 3 inches long and three-quarters wide, with a hole drilled in one extremity. Writing made with a weak solution of silver nitrate turns rapidly black and appears indestructible. I enclose one such label to the Editor. It has done duty for a long time in the open garden, and I send it because I happen to have it in my pocket, and not because it is better or worse than its fellows.

I have lately thought of the new material known as "Celluloid," or "Xylonite," as a promising substitute for bone; it can be obtained in sheets of any thickness and at a moderately cheap rate. If tallies of this substance answer my expectations it will be very easy by means of a galvanised wire holder, or by the plan figured by Mr. Dod last week, to apply them to any situations.—EDWARD COLLENS, *Erdington*.

[The specimen sent is 1½ inch long, three-quarters of an inch wide, and rounded at the ends. It is very neat, durable, and the writing on it is clear and legible. We note that the name "Jules Margottin" is written on both sides of the label—a good and convenient plan for labels suspended to Roses and other trees.]

I HAVE watched the progress of the label question with pleasure. Good lasting labels for general use are, indeed, very much wanted, and the one sent by Mr. C. W. Dodd, and figured in the Journal of the 2nd of March, is a very good specimen of what is wanted. There is one difficult point in it, and that is the fastening of the wire and label together. I venture to remark that a label of the same shape would answer the purpose well with a wire passed through the bottom hole, then up the back of the label, then through the top hole, and finally turned back over the uppermost end of the label. It also strengthens the label. I have used white and yellow paint mixed together, giving it a neutral tint. Names may be then written upon them with a pencil and finished off with a coating of spirit varnish, which stands the weather very well. The wood I use is white spruce. The wire used must be thicker or thinner according to the nature of the soil. I have made one as above described, and send it for your inspection.—G. GARNER.

[The colour, pale buff, is agreeable, and the mode of attaching the wire is simple and good—the best we have seen.]

CAMELLIAS AT REGENT'S PARK.

MESSRS. W. PAUL & SON, Waltham Cross, have now a handsome exhibition of Camellias in the gardens of the Royal Botanic Society, Regent's Park; and admirers of these plants will have a good opportunity of noting the comparative merits of the numerous varieties. The plants are in excellent health, and bearing abundance of expanded flowers, with numbers of buds giving promise of a continuance of the display for a considerable time. About two hundred plants are arranged to form a bank extending the full length of the corridor, and they vary in size from 5 to 8 or 9 feet in height. The stage at the opposite side of the corridor is occupied with boxes of Camellia blooms, some fine Hyacinths in pots, well-grown Lachenalias, and other plants constituting a pretty display of flowers.

The varieties of Camellias are so numerous and good that it is almost impossible to make a short selection, but the following may be named as among the best. Of the comparatively new forms C. M. Hovey is noteworthy for its fine, imbricated, rich

crimson flowers. Its companion, C. H. Hovey, though of less beautiful form, possesses a distinct delicate shade of pink fading to white and slightly streaked. Marchioness of Exeter has blooms of fine substance and shape; colour bright rosy crimson. Sweeti vera, an old form, approaches the last-named in the colour of the flowers, though these are coarser in form, but they are produced so freely that the plant is very attractive. Madame Cachet has broad pink petals tipped with white. L'Avenir is a pretty variety with handsome flowers of a pleasing pink shade. Belle Jannette is noteworthy for its compact habit and large abundant crimson flowers. Countess of Derby, a handsome blush-tinted variety, the flowers being of fine shape and substance. The deep red, almost scarlet, Eximia and the floriferous Chandleri are useful varieties of considerable beauty. The old Double White is still unsurpassed in its section, though Ninfa Egeria is exquisite in shape, and the fine white flowers contrast strikingly with the dark green foliage.

Fimbriata is also admirably represented, its neatly fringed blooms being very abundant.

About 150 Hyacinths are staged, the majority having massive spikes of fine bells, the colours being bright and clear. Grand Bleu is a particularly fine variety with large pale blue bells, and Empress of India is another good form with semi-double rich rosy pink flowers. Several Roses in pots are included, and a handsome specimen of Clematis lobata indivisa is bearing a profusion of its neat white flowers.

VINES AND SEASON IN YORKSHIRE:

I HAVE, owing most probably to the exceptionally warm winter, to modify my statements about the time at which Vines start into growth under the winter treatment which I described on page 151, February 23rd. This year the Vines have started much



Fig. 42.—PEAR MARIE BENOIST. (See page 214.)

earlier than usual; in fact, in the warmer house the Muscat Hamburgh has already made growths from 6 to 10 inches long, and is showing well-developed bunches, and even in the cooler house the Black Hamburgh has growths from 2 to 3 inches in length. Everything, however, is fully from five to six weeks earlier than usual. For instance, I have Peach blossom open on south walls without any protection, and some of the forwardest of the pyramid and espalier Pear trees are expanding their blooms rapidly—such as Williams', Bon Chrétien, Zephirin Grégoire, Van Mons Léon Leclerc, &c. Why is it, I may ask, that several of the Pears which are the latest to ripen are the earliest to bloom? For instance, Easter Beurré, Zephirin Grégoire, Léon Leclerc, and Ne Plus Meuris, which all are late varieties, are nearly the first to open their blooms.

Apricots again this year are unusually early, and have a greater

quantity of bloom on them than I almost have ever noticed, no doubt partly owing to the deficiency of crop last year.

Another thing I may venture to remark with regard to Vines. It is the usually received idea that if the rods are not tied down horizontally the upper eyes will burst first, and will rob the lower eyes of the sap and their growth. Now this year, as it was my intention to try the extension system in the warmer house, and to leave the young and vigorous growths on the Dr. Hogg, Muscat Hamburgh, and Muscat of Alexandria nearly the full length of their well-ripened canes, varying from 8 to 12 feet of new wood, I never moved the canes at all till I pruned them, and altered their position by taking away the Black Hamburgh at the north end of the warmer house and placing Dr. Hogg in its place, the other Vines being also moved; but in every case the buds have started at the base of the rods first, and not at the top. Muscat Hamburgh has

made the most growth, Dr. Hogg next, and Muscat of Alexandria, which this year will occupy what would usually be the space of three Vines, is also starting much more vigorously at the bottom, and not at the top, of the Vine. I will continue these remarks another time.—C. P. P.

PEAR MARIE BENOIST.

WITH this Pear many of our readers will be less familiar than they are with some others that have been submitted as worthy of the attention of cultivators. Yet those who have grown Marie Benoist esteem it as a variety of considerable merit and great promise. Mr. Haycock, the grower of the specimen now figured, speaks approvingly of this Pear, and Mr. Rivers describes it as a very valuable addition to late Pears. It is doubtless worthy of cultivation, and the tree grows well and bears freely.

The fruit is large, irregularly turbinate, and more swollen on one side than on the other. Skin bright green, dotted and lined with russet, and covered with patches of fawn-coloured russet. Eye small, open, and deeply set. Stalk very short and thick, obliquely inserted, with a large swelling on one side of it. Flesh white, tender, very melting and slightly gritty, very juicy, sweet, and delicately perfumed. An excellent dessert Pear, ripe during January and February. A medium sized fruit is represented on the preceding page.

This was raised by M. Auguste Benoist, a nurseryman at Brissac, not far from Angers, and named after his daughter Marie.

ORCHIDS IN MARCH.

MOST of the plants are now showing signs of growth, and consequently the humidity of the atmosphere must be slightly increased by occasional syringings, which should be mostly confined to the paths and stages, in preference to watering the plants themselves. The night temperatures should be 65° in the East Indian house, 60° to 63° in the Dendrobium house, 60° in the Cattleya house, and 55° in the Odontoglossum house. It will be advisable to see to the blinds and ascertain that they are all in working order, as shading will be required on bright sunny days. Of the Orchids in bloom this month the following are the most prominent.

Aerides virens is showing its sweet-scented greenish white flowers, being one of the first of the *Aerides* to start flowering, and remains a long time in bloom. *A. crispum* and *A. Fieldingii* are showing their spikes, and should be surfaced with new material and never shaken out of the pot, as this is liable to check the flowering. The end of this month will be a good time to attend to the *Aerides*. Those which have become too tall should have the decayed stem and roots cut away and be lowered in the pot with clean potsherds and moss, and carefully watched for insects.

Cattleya amethystoglossa is in fine condition, the robust scapes bearing from seven to twelve flowers with rosy white purple-spotted sepals and petals and a rich purple lip. This is a grand Orchid, and is still very scarce. *C. Skinnerii*, producing from nine to twelve flowers with rosy purple sepals and petals and a crimson-red lip with a white spot at the base, also looks fine. This *Cattleya* succeeds best with the cool-growing *Laelias*.

Cypripedium Spicerianum.—Newly imported plants of this should be fastened upon blocks, head downwards, so that water may not lodge in the leaves, and should be hung in the warmest division and syringed twice a day until the leaves begin to stiffen and the plants show signs of rooting, when they will be safe to pot. We have adopted this method with *C. Lowei*, *C. Stonei*, and several others with perfect success.

Colax jugosus.—This pretty dwarf-growing Orchid is in bloom, its short scape bearing a couple of flowers with pure white sepals and dark purple-lined white petals, the lip being white spotted with purple. It succeeds in the intermediate house near the ventilators with a liberal supply of water.

Dendrobium aggregatum is producing its short spikes of golden yellow flowers with flesh-coloured lip. It thrives well in a basket suspended from the roof. *D. Ainsworthii*, a beautiful hybrid between *D. nobile* and *D. aureum*, is blooming at present. The flowers are pure white tipped with purple, and with a large purple blotch at the base of the tip. Like most hybrids this is very free in growth. *D. onosmum* with its large rose-coloured woolly-looking flowers is in perfection, and lasts a long time in bloom. *D. Cambridgeanum* is of a drooping habit like the preceding. The flowers are brilliant orange yellow, with a crimson spot in the centre of the lip, and are now remarkably fine. *D. Freemanii* is producing its handsome rosy-lilac flowers, the lip being deep violet with a yellowish-white border. It makes a fine display. *D. Finlayanum* is blooming freely. This somewhat

resembles *D. nodosum* in habit, having flask-like nodes, while the flowers are not unlike those of *D. Boxallii*. The sepals and petals are white with purplish-violet tips, the lip white, with a yellow disk and purplish-violet base. This is a very floriferous species. *D. macrophyllum* is bearing its exquisitely tinted pale rose flowers, which are exceedingly showy, and emit a strong rhubarb-like smell. *D. Pierardii* with its beautiful white and yellow flowers is also in bloom, lasting a long time in perfection. It makes a lovely basket plant and is most useful for cutting. Nearly all the deciduous Dendrobes do best in baskets or pans suspended from the roof.

Dendrochilum glumaceum is a lovely Orchid with its graceful pikes of deliciously scented whitish flowers. This thrives well in the warmest end of the Cattleya house in peat and sphagnum.

Odontoglossum Cervantesii with its delicate rosy pink flowers marked with rosy crimson semicircles and a white lip, is in fine condition at present. *O. Roezlii*.—This charming *Odontoglossum* bearing large white flowers with purple base is blooming finely, as is also *O. Roezlii album*, with its violet-scented pure white flowers with pale yellow lip. These should always be grown in the Cattleya house and never allowed to become dry. *O. roseum*.—This charming little species is bearing its graceful many-flowered spikes of beautiful bright rose-coloured blooms, which last a long time in perfection, and are extremely attractive.

O. vexillarium is at present producing its spikes, which should be carefully looked to, as they are liable to be injured by being caught in the axils of the leaves and often snap off. Where this is grown in quantity its large handsome flowers may be seen from March to October.

Oncidium sarcodes is making a fine display with its long branching spikes, bearing from twenty-five to thirty large bright yellow flowers blotched with brownish-red, and will continue in perfection for the next four or five weeks. This thrives well in pans with a mixture of peat, charcoal, and live moss. *O. sphaecelatum* is producing its spikes and promising well.

Pleione humilis with its white flowers having a beautifully fringed crimson-veined lip, and *P. Hookeriana*, with its equally lovely yellow-striped blooms, contribute to the gayness of the houses.

Trichopilia suavis is producing its spikes, bearing from three to five hawthorn-scented flowers, which are of a creamy-white colour stained and spotted with red. It thrives well in the intermediate house with peat and moss and plenty of drainage.—ORCHIDIST.

MUSHROOM GROWING.

AS I have seen from time to time in the pages of this valuable Journal accounts of failure in the culture of Mushrooms, perhaps a few particulars concerning my method of preparing the dung and after-management may be of service to some of your readers. As I have had the management of the Mushroom house in several establishments I think my mode can be relied upon, as I never had a complete failure. First, the dung should be obtained fresh from the stables, every morning if possible, and should not be dried as recommended by some, although, at the same time, it should be protected from the wet. I have found it to be entirely useless for Mushroom-growing when it has become very dry. It should be placed in a shed until there is enough for the bed; then it may be thrown up together in a conical shape, but must not be allowed to heat too much so that the centre becomes dry, but turn it every day for a week, more or less, according to the size of the heap.

In making the beds commence with a layer, say a foot in thickness, ram this down firmly, then another layer, making this also firm, continuing this till the bed is finished. After the last layer has been made firm insert a thermometer; very likely the temperature will rise to 100°. When the heat has declined to 85° it is time to see about spawning. The spawn should be broken into pieces about the size of a teacup, inserting these half an inch below the surface with a plunging fork (for I find if dibbled in very often the spawn does not touch the bottom), 6 inches apart every way. The bed should then be well rammed down again and the soil placed over 2 inches thick. This should be well pressed down firmly, then give a sprinkling of water and smooth the surface with a spade, finishing by covering with hay or old mats; the latter I find the better, as hay harbours woodlice. This should have a sprinkling occasionally to keep the surface from cracking. No water should be given until the spawn has covered the bed, then water at a temperature of 86° should be supplied.—J. P.

On a recent visit to Brantingham Thorpe I noticed Mushrooms were grown well; in fact the beds were white with them. The house has a north aspect, and the walls on each side of the path

are substantially built of bricks, and the beds resting on arches. A window in the front wall is very useful both for giving light when making the beds and gathering the produce. The house is easily darkened by closing the shutter outside. The path and walls are kept damp, plenty of tepid water being kept handy. The temperature is kept at about 60°. Mr. Kingston's method of growing Mushrooms is as follows—Collect the droppings from stall-fed horses daily, place them in a shed, mix with them one-tenth of loam, turn them daily, spread them in the day to dry, throw them in a heap to ferment at night until sufficient is collected for a bed, make the bed firm, and spawn it when the heat is subsiding; cover with about 1½ inch depth of soil in a week or ten days, according to the temperature. Mr. Kingston also grows superior Seakale in the same house under the Mushroom beds.—G. W. CUMMINS, *The Grange, Wallington*.

PRUNING ROSES.

THE question of pruning is now evidently exercising the minds of Rose-growers very much. Hardly a post arrives without bringing me one or more letters asking me, "What do you advise as to pruning? My Roses are pushing so that I am afraid of leaving them much longer; and yet if I prune now, and the lower buds start, and the 'nipping frost,' which we have been now so accustomed to, comes, will there not be a rude 'farewell to all my greatness?'" There are, as is always the case, a number of good reasons on each side, for the advocates of a theory never fail for want of support; and it is because I have no theory to support on the matter, but would prefer being guided by experience, that I do not hesitate about giving my opinion. It may be erroneous, but facts are stubborn things.

I have carefully looked through my own small lot, consisting probably of about eight hundred dwarf plants, and do not find the lower buds at all prominent, while the buds at the extremities have pushed out to the length of 2 or 3 inches. It might, therefore, perhaps, be considered to be the safest plan to leave them alone, let the lower buds remain dormant, and defer pruning until later; but experience with me says this is a mistake. Some few years ago we were in a similar position, and I then thought it might be better to defer the pruning until a later period; but I found that so much vigour had gone out into the plants, that when they were pruned the shoots were spindly and the blooms small. I should, therefore, make no difference as to the time of pruning, but do it now, as I suppose most of us have been in the habit of doing.

Then as to the manner of pruning. My own inclination is more and more towards what is called hard pruning. By this I mean cutting down (I am alluding to dwarfs) to within three or four buds, and not troubling oneself too much as to the shape of the bush, cutting out thin and spindly branches, and leaving the centre free for circulation of air. Where practicable it is better to have the lower bud pointing outwards. To this system I know it is objected that if you cut the strong-growing kinds, such as Madame Clemence Joigneaux, Edouard Morren, Paul Neyron, &c., so hard you will get no bloom at all. There may be a few, perhaps, to which this objection might apply, but I am not even quite sure about that; and where irregularity of height is of no moment these might be left, and a few pruned hard in order to see the effect. The rosery where I have seen the system of hard pruning most rigorously carried out is in that of the worthy Vice-President of the National Rose Society, Mr. Geo. Baker of Reigate; and a finer collection of plants (and that not by any means on a good Rose soil) it would be impossible to see than his garden, notwithstanding its disadvantages, produces. I have also of late thought that the old advice of merely shortening the tips of Tea Roses when pruning is a mistake. Last winter compelled most Rose-growers to cut their Teas as hard as their Perpetuals, and I do not think that they had any cause to repent having done so. With me at least they shot up as strongly as I could wish, and gave me plenty of fine blooms. As there has been so little frost this year (we can hardly call it winter), there will be necessity for thus pruning them; but, perhaps, many of us will think it better to follow out a plan which has succeeded so well. Of course where long-growing kinds or Noisettes are trained to walls this would not do, and the tips must in those cases be shortened.

The above had been written before I had read Mr. Moorman's article; but, although it travels over the same ground, yet as an independent testimony it may be as well to give it a place. There is no use in attempting to prophesy as to the character of our Rose season, whether it is likely to be early or late, a good or a bad one, for everything depends on the character of the next two months. It is assumed that because we have had no winter we must have a bad spring; but there is no rule in such matters.

Meteorologists who cannot forecast with certainty for twelve hours would be the first to discourage any such forecasting; but I may say that the other day I was talking to an old parishioner, who said, "Well, sir, about fifty years ago we had just such a winter—not a bit of snow, and hardly any frost." "Well, John, and what sort of a season afterwards?" "Oh, a terrible good 'un surely; we had a fine spring and an early harvest." I trust that the same may be true now.—D., *Deal*.

WHERE only a few dozen Roses are grown the whole may be pruned on one day; but where they are grown in large numbers or by hundreds they should be pruned at two or three different times, as this will be the means of securing a much longer succession of bloom. Here we have Rose beds in several parts of the pleasure grounds. Some are in very sheltered positions, while others are much exposed, and those most sheltered are pruned first. Some of them were pruned two and three weeks since, and others will not be pruned yet. Those pruned first are producing strong early shoots, which will be well advanced before the latest have formed any leaves, and in this way we may not be able to have a great number of blooms at one time; but they will be coming in for many weeks, and this is what is most desired by all who have a constant supply of cut flowers to provide.

The second blooms, which are always much valued, generally come in August and September, and sometimes in October, and the time of pruning in spring has much influence on the last Roses as well as the first. About this time last spring there was not a leaf to be seen on our outdoor Roses; now many of them are quite green, and with the hopes of obtaining a few very early blooms several of them will not be pruned at all; and as the buds are already visible our period of cutting outside Roses will stand a very good chance of being considerably lengthened.

When Roses are not in leaf at pruning time none of us seems much afraid to cut them well down; but when the shoots are 2 or 3 inches long, as many of them will be now, it is with regret, if not fear, that they are cut. In consequence many of the shoots are left much longer than would otherwise be the case, and the result is that many of the plants have very long bare stems at the bottom and a bushy top, which is neither very ornamental nor productive of fine blooms. Dwarf Rose bushes are all very liable to assume this form, and if they are to be useful pruning must not be spared. Every stem, whether it has the appearance of starting into growth near the ground or not, should be cut down to 2 or 3 inches from the soil, and after this, although they may be a little longer in starting, it will be surprising where the number of young shoots have come from, and it will be still more astonishing when it is seen the improvement which will take place with them before the end of the season. We saw many plants of the kind treated in this way last year, and the results were satisfactory in the highest degree.—J. MUIR.

THE Roses—both Teas and Hybrid Perpetuals—I am rather puzzled about. My Teas on a low south wall are showing buds freely, especially Marie Van Houtte, Amazon, and others, many of the shoots being 6 inches above the wall. The top shoots of many of the Perpetuals are from 3 to 4 inches long, and in full leaf. I did not prune last year before the last week in March; after that time we had a long period of cold drying easterly winds, and many of the "Perpetuals" succumbed, and others appeared to be in a lingering state throughout the summer, although at the time of pruning the lower buds looked promising. I pruned hard, as I usually do. My soil is heavy loam, clay subsoil, situation about six miles north of Bristol. The plants were mulched in the autumn of 1880. I have stated the case as clearly as I can, trusting some of our more experienced rosarians will kindly come to my rescue. My own impression is to prune at once; yet I am afraid to begin. A few years back my Roses bled very much after pruning them during the first week in April.—THOS. HOBBS, *Bristol*.

[Our correspondent must either prune at once or not at all. We have shortened the shoots of our Roses to bold buds just awakening into life, not to the almost invisible dormant buds at the base of the stems, and we have no fear that the plants will be exhausted by "bleeding."]

STRAW SHELTERS.

HAVING read in the Journal (p. 175) "A DOCTOR'S GARDENER'S" plan for making straw shelters, also the one following, I have thought it might be of use to some of the readers of the Journal to know the method we use here for making them. It is very simple, and we do not use any wood frames. We twist a straw band the required length and thickness, and lay it on a bench and

tic tar twine about 9 inches apart tightly the length of the band, leaving the ends long at each tie; then draw the straw out straight and lay it evenly between the twine and tie tightly, drawing close to the band; then lay more straw between the twine, and tie tightly as before, and so on till you have the required width, taking care to keep it even, and finish off with another straw band, which gives it a neat appearance. I prefer them far before those made on wood frames, as there is no danger of breaking glass where they are used for covering glass frames, and they are very easily rolled on and off. If well made they last a long time, and when not in use they can be rolled up tightly, as they are flexible, and stowed away till again required.—J. E. AXFORD.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, Colonel R. Trevor Clark in the chair, the following candidates were duly elected Fellows of the Society—viz., W. Fortescue Barratt, G. W. H. Browse, Miss S. Buller, Emile H. Cannot, Mrs. E. H. Cannot, Colonel G. B. Fisher, Walter Graham, Mrs. Grieson, Mrs. Hainsworth, Williams Helps, Mrs. Williams Helps, Robert Alexander Hughes, Miss Beatrice Hughes, John Mattock, Frederick Parsons, J.P., Henry Reeves, C.B., Miss M. Stafford, Edward Geo. Stone, Lieut. Col. D. Ward.

— A CORRESPONDENT, writing in reply to "D.'s" inquiry on page 194 respecting SMALL HAMPER FOR SENDING BY POST, states that they may be had at Mr. Harper's, basket maker, Ashford, Kent. Mr. Lovel of Weaverthorpe, York, has, in answer to the same correspondent, sent us samples of his stout cardboard boxes that are admirably adapted for sending flowers by post.

— A CORRESPONDENT from the south of Perthshire writes—"At the meeting of the Edinburgh Botanical Society on the 9th inst. the attention of the members was drawn by Mr. Sadler, Curator of the Royal Botanic Gardens, to the profuse flowering of RHODODENDRON NOBLEANUM in many places this season. The writer has one plant of this variety barely 2 feet high and 2½ feet across. As it stands in an exposed position a little care has been taken to protect it from the gales and showers of the last ten or twelve days. It has now a most beautiful display of forty-three trusses, high and bright in colour, beyond what it has ever hitherto been while in his possession."

— "STIFFORD" writes—"What a lovely plant CLEMATIS INDIVISA LOBATA is just now, with hundreds of white starry flowers. The buds when in a young state are bell-shaped, its purple stamens showing and giving them a very ornamental appearance. Unfortunately it is not hardy. The plant is grown in a pot, and last year it was cut down closely, and it started into growth strongly. The young shoots were trained to a south wall outside in the summer, where the wood ripened thoroughly, which, I think, accounts for its flowering so profusely. In the autumn it was taken into the conservatory and trained to the back wall, where it has been greatly admired by all who have seen it."

— "G. W. C." writes—"The interesting aquatic OUVIRANDRA FENESTRALIS is well grown at Brantingham in a round glass vessel. The plant is now 21 inches in diameter, and very healthy. It occupies the warmest end of the East Indian Orchid house, and the water is made to flow over frequently by pouring some in from a pot with the rose attached. The plant is growing in good loam, and shaded from the direct rays of the sun. The Ouvirandra may be grown well without shade, only it must be watched and kept clean, or confervæ will soon disfigure the leaves."

— MR. B. SIMONITE informs us that in consequence of the extraordinary AUTUMN BLOOMING OF AURICULAS his plants are "in all shapes." He further observes—"I counted eighty blooming stems one day in November; in fact I have never been without Auriculas since August. The plants are in fine health, and will right themselves; but they are spoilt for a fine spring bloom this year."

— A CORRESPONDENT sends us the following note on STRAWBERRIES AT WOOLTON HALL—"Visiting Woolton Hall on the 8th inst. I was much struck with a batch of Vicomtesse Héricart de Thury Strawberry growing in one of the houses there. The fruit, which was just ripening, was large and well coloured, and the crop for this early period a fine one. La Grosse Suerée, started at the same time and under the same conditions, Mr. Faulkner finds fully ten days later."

— A CORRESPONDENT informs us that Mr. Harris, and not Mr. Davis, as we announced last week, is the successor of Mr. Frisby at Blankney. The fact is we received two letters from Lincolnshire informing us of the change, the first of which contained the name of Harris, and the second that of Davis, and we relied on the latter, and, as we are now informed, the wrong one.

— AN American contemporary thus refers to the GOLD OF OPHIR ROSE TREE—"One of the results of the recent high wind was the destruction of the famous 'Gold of Ophir' Rose tree growing upon the farm of Mr. Maddox, of Grass Valley, California. It had more than a State reputation. The stem was 26 inches in circumference, and the shrub itself had grown over and around an Oak 50 feet high, only stopping in its upward progress from lack of something to climb upon. When in full bloom nothing could be seen but a mass of golden flowers, forming an object of almost indescribable beauty and splendour. It was, as may well be supposed, the pride of its owner, who, when once before a strong wind partially uprooted the supporting Oak, went to a considerable expense to restore it to its upright position. But the recent injury was irremediable, and lovers of the beautiful in Nature have to regret the loss of one of the loveliest specimens of her handiwork."

— WE have received the following SCHEDULES OF HORTICULTURAL SOCIETIES' EXHIBITIONS to be held during the present year. Kingston and Surbiton, May 31st and June 1st. The usual liberal provision for exhibitors is made in this year's schedule, prizes being offered in forty-nine classes for plants, flowers, fruit, and vegetables. The chief prizes are those offered by the President, H.R.H. Prince Leopold—namely, £5, £3, and £2 for a group of plants arranged for effect in a space of 100 square feet. Many other special prizes are also offered. The twelfth Spring Exhibition of the Bristol Chrysanthemum and Spring Show Society will be held at Clifton on March 22nd and 23rd. Prizes, mostly of small amount, are offered in fifty-four classes, including the chief ordinary exhibits, spring-flowering plants being particularly well provided for. A number of special prizes are offered, the most important being those contributed by the Treasurer, Walter Derham, Esq., M.A., for the best twenty-four Hyacinths and twelve pots of Tulips. In this class the first prize is a silver cup value four guineas, the second two guineas and a half, and the third a guinea and a half. The Bath Floral Fêtes will be held at the Sidney Gardens, Bath, on May 10th and September 6th and 7th, a Rose Show being announced for June 28th. Liberal prizes are offered in the leading classes at each Exhibition. At the May Show the prizes for Azaleas, stove, greenhouse, and fine-foliage plants vary from £3 to £8. The Shrewsbury Spring Show will be held on March 23rd; ordinary spring-flowering plants, such as Hyacinths, Tulips, and other bulbs, Azaleas, Cinerarias, Primulas, Spiræas, &c., being chiefly provided for in the

schedule. The Plymouth Flower Show will take place on July 26th. Schedules of the prizes, rules, &c., may be had of Mr. W. Mordaunt Thiselton, the Secretary. There are several very handsome prizes for all England.

— WRITING to the *Times* recently, Mr. George Orme Malley, 26, Upper Temple Street, Dublin, makes the following remarks on TREE-PLANTING IN IRELAND:—"The suggestion of planting trees in suitable localities throughout Ireland deserves attention. In considering the suitability of localities, nothing is more deceptive than the appearance of a country in the absence of the evidence of an existing foliage. In Ireland as well as in Switzerland no soil is more suited for planting than a rocky one. The bogs of Ireland, especially the deep red bog, if deprived of surface water by a cheap system of drainage, will nourish vigorously the Spruce, Larch, Scotch and black Austrian Firs, together with Holly, Laurel, and magnificent Rhododendrons for undergrowth. Witness the experiments in Connemara by Mr. Mitchell Henry, M.P., the late Mr. Plunket, and others in Achill and Ballycroy, on the shores of the wild Atlantic, the plantations of the late Colonel Clive, M.P., and Mr. Pike. In Sligo and Donegal similar proofs of the adaptation of the soil and climate abundantly exist. In Achill Geraniums and other greenhouse plants have been cultivated in the open air, and have been left out during the whole winter. The Mediterranean Heath flourishes magnificently at Mulranny, beyond Newport, and at Carramon Lake, beyond Bangor, in Ballycroy, and grows in both places to the height of 5 or 6 feet, thus indicating the mildness of the climate and the productiveness of the soil. In the neighbourhood of Foxford the land only requires to be enclosed, and the natural timber protected from the depredations of goats and cattle and the old roots immediately throw out suckers, and the bog Willows and Alders spontaneously spring up. The traveller on the railway between Foxford and Ballina can see this on the properties of Lord Arran and Sir Charles Gore. In connection with waste land reclamation, planting trees for shelter would be essential, or rather indispensable. The 'nakedness of our land' in respect of foliage is its most melancholy feature, and I need not dwell on what is so well known to every practical farmer, that nothing nourishes the winter grasses or improves outlying stock so much as tree shelter, especially Spruce, Fir, or other evergreen or non-deciduous trees."

MELONS UNDER RESTRICTION.

MELONS are here grown under difficulties, and possibly some of your readers may derive some hints from the details of my practice that may be of value to them. The pit employed was not erected for growing Melons, but for keeping bedding plants through the winter. It is a lean-to, and is against the sunny side of a small stove 30 feet long. Its breadth is not in proportion, for its outside measurement is just 3 feet. From this remains to be deducted a 4½-inch wall and the breadth of a 4-inch pipe which runs along the front quite close to the wall and the glass. It will thus be seen that the room for laterals spreading is very limited. The pit contains seven lights, and one plant is placed to each. The actual space occupied by each plant is just 4 feet by 2 feet 3 inches. Nevertheless, I have more than once taken three-quarters of a hundredweight of fine Melons from that restricted space in the course of a season.

Except in a few particulars my mode of cultivating this generally appreciated fruit differs little from what has been from time to time described in the *Journal*; but for those who may be commencing I will give every detail from sowing the seed to cutting the fruit. This garden is situated in a late and a cold exposed locality, and not having artificial heat at command to secure temperatures suitable for growing Melons in the earlier months of the year a beginning is made early in March, endeavouring to maintain an abundant and constant supply from June till October. The first batch is raised on a hotbed, generally in the first week of March. At the same time a hotbed is not essential, for wherever a temperature of from 65° to 75° can be maintained with a bottom heat of 70° or a little over, healthy vigorous plants may be raised, provided they are not too much shaded. A 6-inch

pot three parts filled with light fibry loam will be sufficient to raise six or seven plants, and these when the rough leaf appears should be potted singly into 4½-inch pots, using similar soil of the same heat as the bed. Too strong a bottom heat and the use of too much water will do mischief; and air must be admitted whenever the outside air is mild enough to allow of its admission into the frame in small quantities. In cold weather a mat should be fastened over the frame during darkness to prevent the heat escaping.

Six weeks after the seeds are sown the young Melons ought to be ready for planting in their permanent quarters. When they are in this condition pinch out the centre of the plants, which causes them to produce three or four other shoots. If our space were greater I should leave all these, but having only room for one shoot each way from the centre of each light, all but two are removed. When the plants are intended for house culture and to be trained to trellises the centres should not be pinched out at all. Each one must in this consider his conditions and act accordingly.

To help the plants in the earlier stages 2 feet depth of hot manure is placed in the pit, and over this 1 foot depth of the best soil the garden affords, for we have not a loam stack, and are glad to secure a few harrowfuls of that article for the choicer plants in pots. A good medium loam is best, but if that cannot be had choose the next best, avoiding, if possible, very light sandy soil. Too rich soil is not good: it causes a rank unfruitful growth, and the evil is heightened when the plants must, by pinching, be kept in a very small state. When Strawberries are trenched down a year before, and, in order to deepen the soil, some of the subsoil is brought to the surface and afterwards ameliorated by exposure, manure, and a crop of Potatoes, suitable soil is to be had handy, and such forms the staple of our Melon soil, and it must be suitable as large crops of Melons are obtained. But it is somewhat prepared. Such soil would be spoilt by the application of decayed manure, which tends to produce leafy exuberance and sterility. I give in winter an application of cow urine, and that results in plants which are very productive.

Melons are not like Cucumbers in one respect. Cucumber fruits will swell without setting a single seed. Unless Melons set their seeds a fruit will never swell. A moist close atmosphere, and a rich soil which favours a luxuriant growth, are best for Cucumbers; but under such conditions Melons fail. Drier air and poorer soil are necessary in order to succeed with Melons, especially under dull skies and with limited room for extension.

More than that, what the manure furnishes is of even greater importance. Melons must form seeds or the fruits will not swell: that is known. It is also known that often even vigorous plants fail to set fruit, while others by no means vigorous do. Another fact is that the mineral basis of seeds is different from that of the plants, hence the possibility exists of inferior soils enriched with certain foods furnishing plant-forming matter in abundance, and not enough of seed-forming food. When one fruit sets, often enough an even vigorous plant will fail to produce more. Why? Doubtless because the matters available for seeds have all been utilised; at least, that is my idea, and finding that the ash of Melon seeds consists almost wholly of potash and phosphoric acid, but especially the former, I act accordingly. The potash is only present to the extent of 14 per cent. in the Melon plants. It is easy to understand, then, how a soil may contain enough for plant-growth, but yet that the growth uses it all.

With ordinary rotations and ordinary applications of manure both field and garden soil become deficient in potash long before there is an insufficiency of the other matters. The reason of this is that most plants demand more potash than any other compound, and also because less is usually supplied. Acting on this idea I have always, and with gratifying success, used urine—which is particularly rich in potash salts—for manure to our Melons. It is applied in winter—say four or five hundredweight to three tons of soil—so that all the manurial matter may have time to become available plant food. I have been ridiculed for the idea before now, but those may laugh who win.

After the plants are put out they are subjected to a heat by day without sun of 70° to 75°, according to the outside conditions, and considerably more when the sun shines, when we ventilate freely. When the shoots have grown 18 inches they are stopped and the laterals encouraged. On these the fruit appears, and beyond the fruit one or two leaves are allowed to form, and, no more room being available, all further growth is restricted. The space is well filled with leaves, but crowding is decidedly injurious.

Water is used rather freely when the weather is hot; sparingly when dull and damp. The climate must decide the exact amount. When it is used complete drenchings must be given, so that no part of the soil may be left dry. When Melons suffer by want of

water red spider soon attacks them. To guard against an attack the plants had better be sprinkled just before the sun's rays are off the glass, closing immediately afterwards. The hot-water pipe is painted with sulphur as a further precaution, and even bricks painted with it and exposed to the sun will give off fumes of sulphur injurious to nothing but red spider. Should it appear, sponge the leaves with soapy water at once. When the plants are covered the case is hopeless.

When the female blossoms open they are fertilised with pollen. Although in warm summers we have had them set freely without artificial aid, still it costs little trouble, and, if other conditions are right, it ensures a crop. Too many should not be allowed on any plant; but the number a given plant will perfect depends on the space the plant occupies, the ultimate size the fruit should reach, and the health of the plant. In my very restricted space I allow a plant to bear from two to a dozen fruits each. Those kinds which naturally, when well treated, grow to from 5 to 7 lbs. do well when they perfect the fruit. Smaller kinds bear more. Never have so many that all will be starved, or they will be inferior. When the fruit swells liquid manure is given, and it assists them surprisingly. In our climate the autumn is often dull and sometimes wet. Under these conditions they have to be kept rather dry as they ripen, otherwise they are apt to split and be insipid. When the midsummer crops are ripening under a hot sun more water is given. In this matter the cultivator needs to use his own discretion.

When the fruit is of full size it is a good plan to raise them on blocks of wood, bricks, stones, or slates, so that they may be ripened all round. As the fruit ripens it changes its colour, swells, and finally cracks round the stalk. One bright or two dull days after this the fruit is ripe.—SINGLE-HANDED.

BELLFLOWERS.

AMONGST alpine plants suitable for cultivation on rockwork I mentioned several of the smaller Campanulas, and in a recent number of the *Journal of Horticulture* I spoke of the class of which the common wild Harebell may be taken as the type, but there still remain unmentioned a large number of Bellflowers of tall or medium growth worth cultivating in the mixed border. In so large a genus as Campanula it is, I think, a mistake to give any general rules for cultivation, as their habits and requirements, and, what is still more important, the way of propagating and increasing them, are very different. Some run so freely at the roots as to become troublesome weeds if not confined within limits; others multiply to any extent by division; whilst some of the best of them send all their shoots from a single tap root, and must be increased by cuttings or layers.

The most inveterate runners amongst Campanulas, and I might almost say amongst garden plants, except, perhaps, *Oenothera speciosa*, is *C. nobilis*. Its long narrow drooping bells, either white or light purple-spotted inside, would make it a good border plant but for this habit. It does not even admit of being cut round, as it travels away entirely from the spot where it is planted. It must be confined in an earthenware ring 4 or 5 inches deep, inside which it must be occasionally fed to reconcile it to its prison.

Still more weedy in its habits, because it sends up its straying shoots more thickly, is *C. rapunculoides*, which produces one of the neatest and best flower spikes of all the genus. In addition to its running it comes up freely from self-sown seed. It is pretty on old walls in shrubberies and wildernesses, and seems happy anywhere. If you can confine it as recommended for *C. nobilis* it makes a very good border plant.

Less erratic in its way of spreading, but still spreading wonderfully fast, is *C. grandis*. It makes a fine flower spike, though the wind often breaks it off at the ground line; and the flower spikes, in my soil at least, are few for the size of the plant. The white variety is more vigorous than the blue. It is a provoking plant here, and one I could do well without, though my garden is full of it. In lighter soils I believe it behaves better.

C. persicifolia, some forms of which come very near the last in appearance and habit, is nevertheless a far more elegant and satisfactory plant, neater and more compact both in leaf and in flower. There are many varieties of it—both in colour, from dark blue to pure white; in the form of the flower, from a nearly flat disk to a bell 2 inches long; and in its mode of doubling, adopting as it does, like the Canterbury Bell, the cup-and-saucer fashion, as well as the full double. But I own I have never seen such doubles of it as the nurserymen show us in the advertisements. The inner petals are generally short and irregular, and the flower has a stiff unhealthy look.

Campanula latifolia, which is abundant as a wild plant in many

of the midland and northern counties, has all the varieties of colour usual in this class of Campanulas, and is a fine handsome border plant. Good varieties of it are sold under several names, the finest I have met with being called *C. macrantha*. If anyone says this is a distinct species I will not contradict him, for I have never yet been able to learn what constitutes a species, but certainly a name does not. Another very variable native kind both in form, colour, and doubling is *C. Trachelium*: many of its varieties are well worth growing in their proper place.

The Clustered Bellflowers form another class, of which the native *C. glomerata* may be taken as the type. Those who only know this plant from seeing it growing a foot high in the hayfields would hardly recognise it when well cultivated, as it becomes 3 or even 4 feet high, the size of the flowers being proportionate. In all its colours—purple, and lavender, and white—it is a good border plant. A double form is very common in cottage gardens in Derbyshire, but I have seldom seen it here. It has many varieties or near relations, named *C. dahurica*, *C. aggregata*, *C. capitata*, &c. *C. pyramidalis*, though not strictly a biennial, is most easily treated as one. It is best known as a very handsome conservatory plant, but with shelter and tying-up it is a showy late-flowering plant in the mixed border. Another very desirable kind not generally seen, but as easily raised as a Canterbury Bell, is *C. barbata*. Both this and *C. pyramidalis* have good white forms, though they do not always come true from seed. However, I must omit many of this very large genus, and speak of three or four of the best which I have reserved to the last.

C. carpatica is a good old useful border plant, growing about 18 inches high, producing abundance of flowers in July either blue or white. A variety of it dwarfer than the parent and bearing larger flowers is called *C. turbinata*. A large plant of this in full flower is one of the prettiest objects in a garden, even when flowers are abundant. The commonest colour of it is dark blue, but a packet of seed will produce great variety both in form and colour, many being white. The seedlings flower the first year, and in the second year the plants admit of almost endless division, as the side shoots root freely. Mr. Froebel of Zurich has sent out a variety with very shallow bells, almost flat, which he calls *pelviformis*, and which is one of the most distinct forms.

Another of the best Campanulas is *C. Hendersoni*. It belongs to the same class, is a clear good blue, flowers very freely, and lasts a long time in flower. This and the two next I mention are rather difficult plants to divide, being one-rooted. They grow best from cuttings taken in spring. I have twice divided large plants of *C. Hendersoni* in autumn and lost every piece. I see this year in a nursery catalogue *C. Hendersoni alba*. If genuine it will be a great acquisition.

Perhaps the most beautiful of all the larger Campanulas, its only fault being the brevity of its flowering season, is the hybrid *C. Van Houttei*—a hybrid between *C. nobilis* and perhaps *C. Medium*. It grows from 2 to 3 feet high, bearing spikes full of drooping bells at least 4 inches long of a clear satiny blue, and is a very remarkable flower. Another form of it, approaching white, but not pure white, is named *C. Burghalti*. Both of these flower in July. The flowers are too frail to stand bad weather, and, like many other Bellflowers, do not live well in water. I have omitted to mention that fine plant *Platycodon* (alias *Campanula*) *grandiflorum*, because it does not grow kindly in this ungenial climate.—C. W. DOD, *Edge Hall*.

BRUSSELS SPROUTS—"THE AIGBURTH."

MR. IGGULDEN on page 150 expressed a desire for the opinion of those who had grown this variety. I consider it a decided acquisition, the sprouts being of remarkable size, which, though nearly twice the size of Scrymger's Giant, are very firm and solid and of excellent quality, the plants being wonderfully productive.

From a packet of seed sown last March I had several hundred plants, and these when ready were planted in good rich soil in rows 3 feet apart and 30 inches asunder in the rows, and they have succeeded admirably. We have had plenty of sprouts from September, and although some of the plants are now (March 6th) "running," we are still able to gather a peck a day of as firm solid sprouts as we had in October.—G. A.

In the *Journal* for February 23rd Mr. Iggulden, writing about Brussels Sprouts, asks anyone who has grown the Aigburth Sprouts on comparatively poor soil to communicate results. Last year I planted between one and two hundred of the Aigburth. The soil is light and stony, which has to be manured yearly to ensure satisfactory results. I did not plant till late, consequently the sprouts formed late, but I have had a very fine lot of sprouts large and firm, and am still gathering some of excellent quality.

I do not grow the Exhibition Sprouts, but I have seen them, and these are very like them, and quite as large. I have Serymger's Giant growing next to them, but they are not nearly so good, being very loose. Large sprouts are liked here if firm, so I shall grow more of the Aigburth.—J. E. AXFORD.

BARBACENIAS.

Now that catholicity of taste recognises beauty in every phase of plant life one may well be excused from asking "What has become of the Barbacenias?" They were never very abundant

in gardens, but nevertheless they were considered well worth culture thirty years ago. In Maund's "Botanist," t. 64, we find a good account of these plants. Barbacenias are evergreen perennials, natives of Brazil, some twelve or fourteen species being known. Von Martius thus speaks of them—"We were particularly surprised as we were ascending the steep Morro de Gravier, a continuation of the Serra do Oiro Branco, at seeing some arborescent Lilies, the thick naked stems of which divided in the manner of a fork, in a few branches ending in a tuft of long leaves, and being frequently scorched on the surface by burning of the meadows. They are some of the most singular forms in



Fig. 43.—1, BARBACENIA ROGIERII. 2, BARBACENIA PURPUREA.

the vegetable kingdom. The two groups which have these forms, Barbacenia and Vellozia, are called in the country Canella d'Ema, and on account of the resin they contain are much used for fuel, wood being scarce. They appear to thrive only on quartzite mica-slate, and are considered by the inhabitants as a characteristic of a country abounding in gold and diamonds. They are most frequently met with here at an elevation of from 2000 to 4000 feet, always accompanied by a variety of the prettiest shrubby Rhexias, Eriocaulon, and Xyris."

The smaller species, *B. purpurea*, is well figured in Maund's "Botanist," 64, where we are told that "to the care and observation of the Rev. Dean Herbert, of Spofforth, the lovers of new objects of cultivation are indebted for this plant. He picked the

seeds out of a parcel of Brazilian Moss, and was rewarded by this novel flower in 1825." Lindley, speaking of the members of this family, says "They are capable of existing in a dry hot air without contact with the earth, on which account they are favourites in South American gardens, where, with Orchids and Bromeliads, they are suspended in the dwellings or hung to the balustrades of the balconies, situations in which they flower abundantly, filling the air with their fragrance."

B. Rogierii (the larger flower in our illustration) is figured in the "Gardeners' Magazine of Botany," 1850, page 209, and has flowers of a velvety crimson or claret colour borne on gracefully arching scapes. Introduced to English collections by M. Van Houtte of Ghent. It is much larger and of a richer colour than

B. purpurea, although without a doubt both are sufficiently handsome to merit culture in all gardens as companions for *Vellozia Olivieri* (*Talbotia elegans*), a nearly allied plant, bearing white flowers similar to those of *Triteleia uniflora*. This fine species of *Vellozia* is not uncommon in botanical gardens, but we have failed to discover a species of *Barbacenia*. It will be a great pleasure to learn if they are still cultivated in European gardens.—D.

THE APPLE ELECTION.

HAD lists of the sorts (see page 192) to which most votes were given been published without comment I for one should have thought the election useless, but Mr. Killick's notes so admirably qualify the selections that much good must result, and fruit-growers will doubtless agree that we are under an obligation to that gentleman for taking so much trouble in a matter of such general importance.

I, too, have had to discard Lord Suffield, or rather it has left me of its own accord, for the trees were killed by canker. Its decided tendency to suffer from canker must be well known, and yet, strange to say, it has taken the second place among kitchen Apples. Assuredly it ought never to be planted in a thin light soil; nor is a trial necessary, Keswick Codlin being equally early, and even more prolific, if that is possible. It is, moreover, a sure cropper, and is free from canker. If we had to select the best kind growing in a soil where many have suffered more or less from canker, the palm must be given to Golden Noble. The trees are pyramids upon the free stock, and are equally remarkable for size, symmetry, vigour, abundant spurs, robust health, and the abundance of large handsome fruit they bear. The bin full of its rich golden fruit was one of the most attractive features of the fruit-room; not for long, however, for it was in such high favour in the kitchen that the supply was soon exhausted.

Warner's King undoubtedly merits its high position. Its growth is so very stout and vigorous that we can understand Mr. Killick's hesitation to recommend it as a pyramid. I am glad to say it takes rank among the best trees of that form here. The growth of both trees was at first so free and robust that it was feared root-pruning would have to be resorted to. Fruit buds, however, came so early and abundantly that it was unnecessary, and the robust character of the growth impressed itself agreeably upon the fruit, which, despite its remarkable abundance year after year, has always been very large. *Mère de Ménage* also has very large fruit, more than usually attractive by reason of its deep crimson colour. It keeps well into the early months of the year, is sweet and of fine flavour, cooking well, and is so valuable that I am sorry to record the sickly condition of the trees from canker. Cox's Pomona, too, has much canker, and yet continues to bear its excellent fruit freely.

Small's Admirable is in such superlative health, the trees forming no unworthy rivals of Golden Noble, and bearing such heavy crops of fruit, that I regret seeing it advised to choose Stirling Castle instead of it, notwithstanding the high place assigned to the latter in the list. It is undoubtedly true that Hanwell Souring comes late into bearing, but it is well worth waiting for. I have seen it growing in many different soils and situations, and have never seen an unhealthy tree of it, whether pruned or unpruned. It makes a magnificent pyramid here, and is now in full bearing. The fruit cooks well, and is in excellent condition now.

I quite agree with Mr. Killick in his estimate of Duchess of Oldenburgh. It answers so well here, and is ready for use so early (before any of the Codlins), and is so sure a cropper, that I regard it as indispensable. Yorkshire Greening retains its spreading straggling habit of growth under close pruning, and comes slowly into fruiting, but it is a very valuable late winter Apple, and the trees have very little canker. I regret that Striped Beefing is left out in the cold. It certainly suffers from canker; yet we have not a more valuable winter fruit. Few are equal to it. It keeps well, is very sweet, juicy, fine-flavoured, and cooks well. It is large and very handsome, bright yellow beautifully striped with crimson.—EDWARD LUCKHURST.

THE LYON LEEK.

LEEK-GROWING amongst cottagers, at least on the eastern borders of Scotland, is carried out with much success. In Peeblesshire, East Lothian, and also on the west coast, the Leek is also made a speciality of. It is also very probable that other districts may be equally famed for the Leeks produced, but this I am not certain of. There is this peculiarity about Leek culture as pursued by cottagers, that not only in each district, but even in each village, a particular strain is grown, very probably from the same stock at first, but after many years' selection exhibiting

slight differences. It is, consequently, by no means an uncommon occurrence to find Leeks named after the village in which they are grown, and in all cases the strain possessed by one of the cottagers is ahead of that of his neighbours. The Lyon Leek is a case in point. For several years it has been favourably known as one of the best under the name of the Yetholm Leek. A correspondent writes to me that it is only for early autumn shows, as in August or September, that its qualities are most apparent, the larger forms surpassing it later on. It is now being sent out under the name of the cottager who has been most successful in its cultivation. However, it must be borne in mind that a careful selection of the very finest Leeks for yielding seed is one of the main points that cottagers depend on for success.—EAST LOTHIAN.

ROYAL HORTICULTURAL SOCIETY.

MARCH 14TH.

REMARKABLY fine spring weather prevailed on the occasion of this meeting, and this induced not only a large number of the members of the Committees to attend, but also brought out the exhibitors in strong force. The Council-room was fully occupied with plants of various kinds, Mr. H. Little's Cyclamens and Messrs. Paul's group of Roses and Amaryllises forming very important features.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Messrs. Saltmarsh & Son, Chelmsford, sent specimens of an Apple named D'Arcy Spice, a variety much grown in the north-east of Essex, and supposed to have originated at a place called Tolleshunt D'Arcy. It is of moderate size and good flavour. Mr. Burnett, The Gardens, Deepdene, Dorking, sent two varieties of Apples for name, both said to be of excellent quality, one even surpassing Wellington for cooking purposes in the estimation of some, as it possesses less acidity. Mr. Gilbert, The Gardens, Burghley, Stamford, sent samples of a new seedling Apple named the March Queen. The fruits were of moderate size, very solid, and of good flavour, but the Committee desired some particulars as regards the habit of the tree. Mr. Gilbert also sent fruits of a seedling Apple, Barnack Beauty, sent out by Messrs. Brown, Stamford. Mr. T. Laxton, Bedford, contributed fruits of an Apple, Henry Webb, sent in November to show its keeping qualities. Mr. Todman, The Gardens, Bushey Down, Tooting Common, sent samples of a dwarf Bean from Australia named Australian Prolific; it is said to be four days earlier than Osborn's Forcing. The Beans were gathered from plants placed out in January. Mr. J. F. Barter, Lancefield Street, Harrow Road, sent samples of Mushrooms gathered out of doors, also some good spawn.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. Veitch & Sons, Chelsea, exhibited a handsome group of Amaryllises and new plants, several of which were certificated. A panful of the peculiar little *Loropetalum chinense*, with clustered flowers having linear white petals, was noteworthy. The fragrant *Boronia megastigma* and several Orchids were also included. A fine group of *Rhododendron Early Gem* was also staged in the vestibule. The plants were bearing a profusion of pale mauve flowers and were much admired. A plant of the pure white *Cydonia japonica nivalis* and the dwarf *Abelia serrata* were also contributed. Messrs. H. Cannell and Sons, Swanley, exhibited plants of some remarkably handsome new Cinerarias, the flowers large, of good form, and rich colour. The best were March Past, deep rich crimson, very large, with a white eye; Mr. Cullingford, deep maroon, neat shape; Othello, rich blue; Mrs. Burnaby Atkins, bright crimson, of excellent form; and Dr. Ashurst, whitetipped with blue. A new *Polyanthus*, J. Douglas, was also represented by several plants; the ground colour is deep maroon with gold lacing. *Heliotropes White Lady* and *President Garfield*, the latter with fine curved spikes of purplish flowers, and a basket of Violets including Swanley White was also staged. Mr. Cannell's strain of Cinerarias was highly commended.

Messrs. Paul & Son, The Old Nurseries, Cheshunt, had a beautiful group of Roses in pots, Azaleas, and Amaryllises. Of the Hybrid Perpetual Roses, Anna Alexieff, Madame Victor Verdier, and Madame Lacharme were very fine; the Tea Madame de St. Joseph being also noteworthy for the number of its fragrant blooms. The Perpetual *Polyanthus* Roses Anna Maria de Montravel with small white flowers, and Mignonette with pale pink blooms, were shown as decorative varieties. They are very free and of dwarf habit. A silver Flora medal was awarded for this handsome group. Mr. R. H. Vertegans, Edgbaston, Birmingham, was accorded a vote of thanks for a number of blooms of fine double Cinerarias, among which the best were Inda, purple and white; Vortigern, crimson; Purple Perfection, purplish blue; Cobalt, deep purple; Exquisite, crimson-white. Flowers of the pure white fragrant *Nicotiana undulata* were also sent. Mr. C. Green, The Gardens, Pendell Court, Bletchingley, sent spathes and leaves of the peculiar *Arisæma Sieboldi*. The spathes are about 6 inches long, the apex bent downwards, striped inside with dark glossy brown and white, and having a white spadix. The leaves have petioles 18 inches to 2 feet long, with three elliptical leaflets. Flowers of Cineraria Webbiana, something like *C. cruenta* in form and colour, were also sent; and *Pulsatilla africana* (*Anemone capensis*), having large white and purple-tinged flowers.

Mr. H. Bennett, Shepperton, Middlesex, sent a box of Pedigree seedling Rose blooms, some of which were very bright in colour, neat

in form, and extremely fragrant. Several plants were also sent of Earl of Pembroke, with neat flowers, bright crimson inclining to scarlet; and Lady Alice Fitzwilliam, with rather large full blooms of a delicate pale pink shade. Some of the unnamed varieties, of which only blooms were sent, were much admired by the visitors, particularly one of a soft rose tint. Mr. J. Odell, Gould's Green, Hillingdon, had a large group of Cinerarias and Primulas. The white varieties of the latter, named Purity and Queen Victoria, were especially noteworthy for the large size and abundance of their trusses. Messrs. Ivery & Son, Dorking, sent a hybrid Skimmia, with *S. oblata* for comparison. The flower head of the hybrid is much larger and more compact than the other. Mr. Woodbridge, The Garden, Syon House, Brentford, sent flowers of the pure white *Pancratium-like* *Hymenocallis macrostephana*, and a fine spathe of *Anthurium Schertzerianum*.

A cultural commendation was awarded to Mr. H. Clinkahury, gardener to J. C. Bowring, Esq., Forest Farm, Windsor Forest, for a magnificent specimen of *Lycaste fulvescens*, bearing 255 flowers. The plant was about 2 feet in diameter, in a large pot, with pseudo-bulbs 6 inches high and 3 to 4 in diameter, the leaves being nearly a yard in length. The flowers are of a peculiar yellowish brown colour, and are closely clustered round the pseudo-bulbs. It was generally acknowledged to be one of the most remarkable specimens ever exhibited as regards the abundance of its flowers. Mr. C. Turner, Slough, sent flowers of seedling Tree Carnations, representing several fine varieties. Mr. Llewellyn, rose; Worthington Smith, dark scarlet; and Enchantress, rose pink, streaked with crimson, were the best. Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, sent plants of a fine white *Primula* named Snowflake. It is of the fimbriate type, the flowers large, pure white, and freely produced. Plants of the peculiar *Anthurium Schertzerianum alba* were also shown. Mr. Salter, gardener to G. Southgate, Esq., Selborne, Leigham Court Road, Streatham, exhibited a plant of *Dendrobium Brymerianum*, bearing four of its rich yellow flowers, with its strangely formed deeply fimbriated lip.

Mr. Mill, gardener to Lord Rendlesham, Rendlesham Hall, Suffolk, sent a fine specimen of *Cymbidium eburneum* in a pan 15 to 18 inches in diameter; it was bearing about thirty handsome flowers. It was an extremely well-grown and handsome plant, and it was recommended for a medal. Mr. J. C. Spyers, Orchid grower to Sir T. Lawrence, Bart., M.P., Burford Lodge, Dorking, was awarded a cultural commendation for a fine pan of *Pleione humilis* with about thirty flowers. Mr. Todman sent two seedling Azaleas, one with flowers of neat form, very deep red in colour, and a semi-double white variety named Snowball. Henry Little, Esq., Hillingdon Place, Uxbridge, contributed a magnificent group of Cyclamens, including crimsons of various shades; tinted varieties and white were abundantly represented. About 150 plants were staged, all of excellent habit and flowering most profusely. One variety named Striata with white and crimson-striped flowers was very notable. A fine group of Cinerarias, single and double, was also staged; the singles were of very dwarf habit, and named Compacta. The flowers were abundant and brightly coloured. The Cyclamens were, however, the great feature, and well merited the silver-gilt Flora medal awarded. Mr. H. B. Smith, Ealing Dean, also had a large and handsome group of Cyclamens of the usual good quality characterising the plants exhibited by him. A silver Flora medal was awarded for the group.

Mr. J. George, gardener to Miss Nicholson, Putney Heath, had a fine group of seedling Abutilons, including several very handsome varieties. Several very dwarf in habit were shown, flowering freely, about 6 to 8 inches high. Compactum Little Gem, with deep red flower, is very beautiful; Little Pet, also of a deep shade, was similarly good. Of the larger varieties Le Grande is remarkably floriferous, with large flowers of a scarlet sealing-wax hue. Dazzle has deep red flowers of excellent form; Rosy Morn, rosy purple flowers, with broad roundish petals; Emperor, with deep red extremely large blooms; Splendour, deep scarlet, and many others. Messrs. J. Carter & Co., High Holborn, had a group of Primulas, including Royal Purple, a streaked variety named Venus, and a large crimson named New Bouquet. Mr. B. S. Williams, Upper Holloway, contributed a group of handsome Cyclamens, bearing flowers of great size and substance, and was awarded a bronze Banksian medal. Mr. Williams also had a plant of *Tricopilia suavis alba*, with three pure white flowers, and *Amaryllis Marshalli* with neat deep scarlet flowers. Mr. Masters, The Brake, St. Austell, Cornwall, sent some fine *Rhododendron* flowers, and was awarded a vote of thanks. J. J. Whehle, Esq., Bulmersh Court, Reading, was awarded a vote of thanks for a basket of *Rhododendron* flowers tastefully arranged on moss, the handle being wreathed with shoots of *Smilax tamnoides*. Mr. James, The Gardens, Redlees, Isleworth, staged a collection of Cineraria blooms of excellent form, colour, and substance, and was accorded a similar recognition to the last-named. Mr. Nunns, gardener to J. D. Llewellyn, Esq., Atherton Grange, Wimbledon, was awarded a vote of thanks for a pot of *Narcissus bulbocodium* and the small *Crocus-like* *Trichonema bulbocodium*. A group of Cinerarias, *Begonia manicata*, and *Lachenalia Nelsoni*, with several Fuchsias, was contributed from the Society's gardens at Chiswick. The *Lachenalias* were remarkably well grown; the *Begonias* were also fine.

First-class certificates were awarded for the following plants:—

Amaryllis Baron Schröder (Veitch).—Flowers of medium size, but good form, three in a head, and very deep scarlet-red in colour. The

neatness of the flowers and the deep shade of colour were the two chief points in this variety.

Amaryllis Duchess of Connaught (Veitch).—Unquestionably one of the best white varieties yet obtained. The flowers are of moderate size, about four in a head, and white with scarcely any tinge of green.

Amaryllis Charles Dickens (Veitch).—A particularly handsome variety with flowers of great size and substance. The petals are broad, rich scarlet, with a clearly defined white band down the centre of each.

Oncidium fuscum album (Veitch).—A peculiar and distinct variety, with small flowers, and a broad roundish white lip having a central blotch of claret. The sepals and petals are marked with a similar claret hue.

Rhododendron Excelsior (Veitch).—A handsome *Rhododendron* of the greenhouse hybrid section. It is the result of a cross between *R. Princess Royal* and *R. javanicum*, and has large buff-coloured flowers 2 to 3 inches in diameter, the petals broad and rounded, and the stamens red. It is very floriferous, twelve to fourteen blooms being borne in one truss.

Rhododendron Monarch (Veitch).—Obtained from a cross between *R. Princess Alexandra* and *R. Duchess of Edinburgh*. A pretty variety though less imposing than the preceding. The flowers are of moderate size, neat form, and bright clear orange in colour.

Cyclamen White Gem (Little).—One of the giganteum type with flowers of great size; the petals broad, finely rounded, and pure white. A most effective variety.

Cyclamen Crimson Gem (Little).—Extremely floriferous, the blooms being of good substance, large and deep crimson. One of the best of the rich-coloured forms.

Cyclamen Rose Queen (Little).—A second-class certificate was awarded for this, which may be considered the best rose-coloured variety that has been shown. The flowers are remarkably abundant, even on small plants, and it is a very useful type for cutting from or for decoration.

Abutilon Cloth of Gold (George).—A beautiful form with bell-shaped flowers of a clear bright yellow hue. They are very freely produced, and the plant is of good habit.

Abutilon Le Grande (George).—A remarkably floriferous variety, the flowers being of globular form, and very bright in colour, suggestive of scarlet sealing-wax, being very glossy, but a little deeper in hue; very handsome and distinct.

Cineraria Mr. Cullingford (Cannell).—A remarkably beautiful variety with symmetrical flowers of surprising substance and velvety in appearance. The colour is a deep maroon, very rich.

Galeandra nivalis (Sir Trevor Lawrence).—A pretty little Orchid with brownish, narrow, reflexed sepals and petals. The lip is funnel-shaped with a yellow spur, and the limb is white blotched in the centre with purple.

Calogyne glauca.—An Orchid was exhibited by Mr. Parr, gardener to Mrs. Russell Sturgis, Givons Grove, Leatherhead, under the above name, but it was considered by many to be a form of *C. ocellata*. The sepals and petals are narrow, pure white, the lip being stained with lemon. Six or seven flowers are borne in a raceme.

Odontoglossum Alexandræ Stevensi (Stevens).—One of the finest marked forms of this beautiful Orchid that we have seen. The flowers are large, and the sepals and petals are thickly barred with brown.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair.

Agglomerated Acorn Cups.—Dr. Masters reported on the specimen exhibited at the previous meeting, and found that the apex of the shoot had been attacked by some insect, causing the unusual appearance and arrest of the proper development of the flowers.

Australian Fungi.—Mr. W. G. Smith exhibited dried specimens and drawings of Grasses attacked by a Fungus from Sussex, and especially Kent, probably new to Britain. It was only known a little more than two years ago. It appears to attack chiefly species of *Festuca*, and is most abundant on sandy soils and not on clay. It only attacks the older Grass and appears in September, lasting till January. It has the appearance of fine short tufts of minute crimson or scarlet seaweed, glueing the blades together. Rev. J. M. Berkeley described and figured it amongst Australian Fungi in the Journal of the Linnean Society, 1873, xiii., p. 175, and named it *Isaria fuciformis*. Dr. Cooke now regards it as British. The microscopic structure consists of masses of cells of larger length towards the base but smaller towards the extremities, which end in forming conidia. It is said to cause the death of animals browsing upon it, as two cows died in September, 1880, and their lungs were found covered with a fungus resembling that of diphtheria. Two rabbits fed on grass attacked with the Fungi died. It may be observed that several species of *Isaria* are parasitic on dead and living animal organism. The specimens and many of the above details were received from Rev. C. W. Shepherd of Trottscliffe Rectory, Maidstone.

Disease of Thujas.—Mr. Smith also exhibited specimens of *T. compacta* attacked by the Australian Fungus named *Capnodium australe* by Dr. Montague. *T. compacta aurea* and *elegantissima* are sometimes covered by this species in autumn, and in the following early spring they are found to be quite dead, the roots as well as the tops. The Fungus was described by Rev. J. M. Berkeley in Journ. of R. Hort. Soc., vol. iv., p. 253, fig. p. 259, as surrounding the branches of Coniferae from the Swan River.

Rhododendrons.—Mr. Mangles exhibited several true species from Sikkim—*R. argenteum*; *R. Hookeri*, nearly resembling *Thomsoni*,

remarkable for the scales on the ribs; *R. ciliatum*, with white flowers. He observed that as originally figured in Hooker's "Him. Rhods." it is coloured in error pink. This specimen was received from Mr. Anderson-Henry. *R. fulgens*, which grows at a great elevation in the Himalayas. *R. arboreum* from Nepal, and *R. doricum*, very small-flowering sp. from N.E. Siberia. A vote of thanks was unanimously given to Mr. Mangles for his interesting exhibition.

Fritillaria obliqua and other plants were exhibited by Mr. J. H. Elwes. The above is nearly black. Its country is supposed to be Russia, but is not strictly known. *Leucojum aestivum* var. from South France, which flowers two months earlier than the common form. *Chionodoxa* var.; self-sown seeds blossoming in two years. Mr. Elwes remarked that its habit has changed, inasmuch as it comes up rapidly and blossoms as soon as the snow is off in Asia Minor, whereas here its progress is delayed to a much longer period, and is getting laxer in this respect every year. *Korolkowia* (*Fritillaria*) *Sewerzovii* sport, a remarkable green-flowered branch from what is normally a purple-flowered plant. *Tulipa Greigii*.—Mr. Elwes remarked how the colour appears to be fading under cultivation. *Geaster fornicatum*.—Specimens of this curious fungus were exhibited by Mr. Grote.

Evils of Root-pruning.—Dr. Masters exhibited roots of *Pavia* which had been cut for easy removal, but which developed a hypertrophied condition of the cortex as the result.

Conifers.—He also exhibited specimens of cones, &c., from trees grown by Mr. Veitch. *Abies* (*Picea*) *grandis*, *Pinus tuberculata*, the scales being unequally developed on opposite sides of the cone. The seeds are believed only to escape after the forest fires have taken place. They hang on the trees in many generations, even for thirty years. *Tsuga Pattoniana* (*Hemlock Spruce*); *Picea amabilis*, the true form, much resembling *P. Nordmanniana*, remarkable for its scent; *Thuja gigantea* (*Lobbi*), often called *Libocedrus decurrens*.

Orchid Leaves Diseased.—He exhibited some leaves from Mr. Low of Clapton, but the nature of the disease could not be determined.

Welwitschia Seedling.—He also exhibited a dried specimen of a germinating *W. mirabilis*, showing the two cotyledons (deciduous), and the two next and permanent leaves.

Various Diseased Plants.—The Secretary read a communication from Lord Romney of Gayton Hall, near King's Lynn, describing serious injury to many plants, Carnations, Ivy, &c., apparently due to fungi, nematoid worms, &c. They were referred to Mr. Smith for examination and report.

Plants Exhibited.—*Galiandra nivalis*, a remarkable Orchid with spurs like *Impatiens*, by Sir Trevor Lawrence. *Pleurothallis glosiopogon* and *Spathoglottis Lobbi*, two interesting Orchids, for which botanical certificates was awarded to Mr. Veitch. *Tulipa biflora*, bearing star-like flowers, was exhibited by Mr. Wilson.

LECTURE.—The Rev. George Henslow first exhibited and described the several species of *Rhododendrons* brought by Mr. Mangles, and referred to in the report of the Scientific Committee. He then called attention to the hybrids and seedlings exhibited by Mr. Veitch, for two of which first-class certificates were given. A fine display of *Cyc'amens* gave occasion for remarks on their propagation; while Mr. Little's White Gem and Crimson Gem, for which first-class certificates was awarded, showed the result of crossing with the plant called Gem, which received a botanical certificate in 1879. One specimen of the same grower was remarkable for its rich scent. A Primrose with green corolla, shown by Mr. Cannell, and another with leafy calyx, illustrated metamorphoses of flowers, which the lecturer showed might be progressive, as when a calyx is converted into a corolla, as in hose-in-hose Primroses, Azaleas, and Mimulus, or retrogressive when stamens and pistil turn to petals, as in some large white double Violets exhibited by Mr. Cannell, or when any part of a flower becomes a leaf, as in the green Rose and green Primula exhibited. A curious proliferous *Anthurium Schertzerianum album* exhibited by Mr. Child, which bore miniature spathes and spadices more than half way up the usual spadix, called for some remarks on proliferation, and Mr. Henslow pointed out the fact that it was exactly analogous to Egyptian Wheat, which bears several ears growing out of one stem—several florets, that is, developing as supernumerary ears. He took the opportunity of correcting the popular error that "Mummy Wheat"—i.e., Wheat found in the catacombs of Egypt, possibly three thousand or more years old, had ever germinated, which it had long been proved had never taken place.



KITCHEN GARDEN.

A PART of the plantation of Horseradish should be lifted by trenching the ground and clearing it of all waste pieces of roots, selecting that which is fit for use, which should be laid in near a north wall for present use and for some time to come, retaining the long clean thin pieces of 15 to 18 inches in length for transplanting.

The ground intended for it should be well prepared by trenching and manuring, Horseradish thriving in the compost from rubbish heaps; and the pieces of roots should be planted 9 to 12 inches asunder in rows 18 inches apart. Ground intended to be planted with Globe Artichokes should also now be prepared by trenching and liberal manuring, as they succeed in a deep and moist soil. Do not hastily remove the ashes from about the collars of the plants, as severe weather may yet be experienced and seriously injure the plants, which are yet tender from the effects of the protecting material.

There should not be any further delay in sowing Onion, Parsnip, the Early Horn section of Carrot, and Leek seed. A good breadth of Parsley should also now be sown, and a small quantity of Chervil. If the sowing of Cauliflower, Brussels Sprouts, Lettuce, Cabbage, &c., have not been done, as advised in our last calendar, on a warm border, it should be attended to at once. Make another sowing of Peas and Broad Beans, drawing a little soil to those sufficiently advanced, and place sticks to Peas as they become fit. All young plants as they appear will need occasional dusting with quicklime, soot, or dry wood ashes to protect them from the ravages of slugs and birds. A free use should be made of the hoe between the rows of Lettuces, Cabbage, autumn-sown Onions, Winter Spinach, as a means of checking weeds and accelerating the growth of the crops. The main garden crop of the early and second early varieties of Potatoes should now be planted. Sowings of Spinach and Radishes will henceforth need to be made at intervals of about three weeks, but we grow these crops between the rows of Peas.

Forcing Department.—Young Canliflowers, Brussels Sprouts, Lettuces, Leeks, and Celery should be pricked out in a frame with a gentle bottom heat, freely ventilating in favourable weather, so as to have them sturdy and hardy preparatory to planting outdoors. Pits and frames in which Carrots, &c., are growing should be liberally ventilated, but this must be regulated by the weather and condition of the plants. Potatoes.—When the weather is favourable the sashes of Potato frames must be withdrawn in the morning and replaced late in the afternoon, having protection at hand in case of frost. Vegetable Marrow seed now sown, and the plants when large enough potted in 4-inch pots and well grown, transferring when fit to a deep frame with a gentle bottom heat, will afford an acceptable addition to early vegetables and for exhibition, Moore's Cream being best for this purpose. French Beans should be regularly and well attended to with water or liquid manure, earthing up those in pots when the plants are 2 or 3 inches above the rims, those in pits being mulched between the rows with an inch depth or so of old well-decayed manure when the plants are about 3 inches high. Maintain the supply of Asparagus, Seakale, and Rhubarb equal to the demand. Shift Tomatoes into larger pots as they need them, those 8 inches in diameter being ample to obtain strong plants for planting out in borders and for affording early fruit; the 8-inch pots are suitable for fruiting, but where there is a good run of trellis they may be shifted from the 8-inch to 12-inch pots. Pot rather firmly in good turfy loam with an admixture of a fourth of decomposed manure, and mulch the surface with the same to encourage surface roots. A sowing of Tomato seed should now be made to obtain plants for training to the walls outside. Pot off Capsicums as they become fit.

FRUIT HOUSES.

Vines.—Vines bearing Grapes swelling after stoning should be liberally supplied with liquid manure, giving the inside borders a thorough soaking with water or liquid manure at 90°, maintaining a moist genial atmosphere by damping the paths two or three times a day. Admit a little air at 70°, allowing the temperature to rise to 80° or 85° from sun heat, closing early in the afternoon, but not so early as to cause the temperature to rise above 90°, and have plenty of moisture in the atmosphere, and the night temperature may be allowed to fall to 65°, or on cold nights 60°. Allow as far as space admits moderate extension of the laterals, but where the allotted space is covered with foliage keep them closely pinched to one joint. Presuming fermenting materials have been introduced to the house at starting time they will now be cool and should be removed, the surface of the border being covered with sweetened horse droppings from the stables or the short litter from the dunghill.

Very early Grapes—the earliest Vines in pots and started in November—are now colouring, and will need a comparatively dry atmosphere, and a steady supply of warm air admitted day and night, a free circulation of warm dry air being indispensable to good colour and finish; and although a lessened supply of moisture be needed in the atmosphere, the supply to the roots must be maintained to meet the requirements of the foliage, which should be kept well in hand by pinching.

Attend to the disbudding, tying-out, and stopping in succession houses. On no account allow the thinning of the bunches and berries to be neglected. As soon as the fruit is set determine the number of bunches to be left on a Vine, and then remove those that have not set well or are small or badly placed, the desire to have a good show of fruit leading to overcropping. Free-setting varieties may be thinned as soon as they are out of flower, but Muscats and other shy setters should be left until it is seen which are the properly fertilised berries. No rules can be laid down for thinning, as strong healthy Vines have much finer berries than others that are less vigorous though of the same variety. In a properly thinned bunch of Grapes every berry should have space to swell without becoming wedged, and yet the bunch retain its form when cut. Maintain a steady circulation of warm and comparatively dry air where Vines are in bloom, with a minimum temperature of 65° for Hamburgs and 5° more for Muscats.

Late houses of Hamburgs must be kept as cool as possible, allowing them to start naturally; but Muscats and late Grapes should have the houses closed and a moist atmosphere secured by damping the rods frequently, maintaining a temperature of 50° to 55° artificially, and an advance of 10° to 15° from sun heat. The inside borders should be supplied with water at a temperature of 85° to 90°, in sufficient quantities to render them thoroughly moist.

Melons.—The earliest plants are now well advanced up the trellis and are showing flowers. Fertilise the female flowers daily on some of the plants, which should be kept rather dry at the roots for a few days, and rather warmer for a time till the fruits commence swelling, then stop the shoots at the first joint beyond the fruit. The flowers may be removed from the other plants, stopping at every joint, and the plants will gain strength, and fruits will appear on the sub-laterals, forming a succession to that from the plants allowed to carry fruit on the first laterals. Do not earth-up the roots till the fruits are swelling, and a large quantity of soil is not needed for the first batch. Maintain a moderately moist atmosphere in bright weather, and gently syringe overhead at closing time. In pits and frames plants that have been recently placed out will not need much water for the next few weeks. Be careful to allow the escape of rank steam, especially when the sun is powerful, employing a good night covering; in other respects attend to remarks offered for Cucumbers. Sow seed to obtain plants for pits or frames as they become cleared of Potatoes.

Cucumbers.—In houses the night temperature should be kept at 70°, falling a few degrees on cold nights, and water must be used a little more freely. Thoroughly renovate old beds by removing with a small fork as much of the exhausted soil as can be done without much injury to the roots, and supply rich lumpy compost previously warmed. Trim and thin the plants at least once a week, and keep a strict look-out for canker at the collar, and apply fresh-slaked lime promptly. Dung-heated beds which have been made up a few weeks will need lining, which should be done by removing as much of the outside of the beds as can well be spared; and if the heat has not declined too much it will be sufficient if only one-half the bed is lined now, deferring the other half until the heat is again found to be declining. Let the linings be 2 feet in width—thin linings being of little use—and when the bed has become re-heated be very careful, especially when the sun is powerful, to allow the escape of rank steam. Attend to training and pegging-down the shoots as they advance in growth, adding a little more soil as the roots spread on the surface, and in watering do not wet the foliage more than is possible at present.

PLANT HOUSES.

Greenhouse.—The spring potting of *Aphelaxis*, *Acrophyllums*, *Ade- nandras*, *Chorozemas*, *Dracophyllums*, *Tremandras*, *Statice*s, &c., should

be proceeded with and completed as soon as possible, as the drier atmosphere consequent on the increased sun heat renders it somewhat difficult to manage newly potted plants. Any plants of *Epacris*, *Cytisus*, and *Acacia* that have flowered should, if they need it, be cut back sufficiently to keep them in shape, placing them where they will have a night temperature of 50°, which will enable them to make and mature an early growth, and will be easily brought into flower another season. Syringe them every fine afternoon, and when fairly in growth repot any requiring it.

Cinerarias that are latest in producing blooms are valuable and should be kept in a north house so as to retard their flowering, and as they are moisture-loving plants it will be advisable to stand them on a moisture-holding surface. *Pelargoniums* need a little more water, but they must not be overwatered, and ventilate freely on all favourable occasions. Keep a sharp look-out for aphides and fumigate upon its first appearance. Keep *Fuchsias* in a genial temperature of 50° at night, and syringe them occasionally.



THE SEASON.

BEEs now being exceedingly active, much more so than they went at this time of the year, bee-keepers are naturally looking forward to what is hoped will prove a year of prosperity. The catkins of the Willow are in full bloom, and during the working part of the day the little workers are actively employed gathering the nectar and collecting the pollen to supply the wants of the brood. The Gooseberry is coming into bloom and will further stimulate the willing workers and prepare them for the honey harvest which follows. But of all flowers the Gorse at present, here in the west of Scotland, affords the most lasting and largest supply of food for those in the vicinity of it. This shrub is now full of golden bloom, and will continue producing flowers for many months. The uncommonly mild season we are experiencing has forwarded the breeding, and the consumption of store will be great, especially in districts where there is deficient pasturage for bees. Should severe frost not visit us early swarms will be the rule. Those who have hives will require to attend to them at the present, for there is danger of their running short of food. Stocks which have consumed most of their store to supply the extra demand on their resources may be reduced to starvation should their necessities not be attended to at once. What little they can gather from flower blooms in most districts, a series of wet days may compel them to destroy their brood to prevent immediate starvation—an expedient which would be disastrous to the hive, which a short time ago showed all the signs of becoming a great and prosperous colony.—W. F.

WHAT TEMPERATURE DO BEES REQUIRE DURING THEIR TIME OF REST IN WINTER?

[Translated from the "*Bienenzeitung*." Communicated by Mr. Alfred Neighbour.]

ALL Nature is in winter in a state of complete repose. In a bee hive also almost everything is perfectly quiet then. In a state of torpor our favourites await the time when the sun will again rise higher in the sky and returning spring awakens them to new activity.

But every colony does not awaken from its slumber; many communities never return to life again. It all depends whether the bee-keeper has done his duty in making judicious and careful arrangements for wintering his colonies safely. Although bee-keepers are pretty well agreed as to the requirements and conditions of wintering bees, the greatest ignorance still exists as to what should be the temperature in the hive while the bees are at rest in winter. One bee-keeper, for example, says the hive should be constructed in such a way as not to allow the temperature in its interior at any time to fall to the freezing point or below. Another bee-master expresses his admiration at bees being able to withstand the cold when the temperature inside the hive is at freezing point or even lower, whilst a temperature of 52° Fahr. is sufficient to chill or numb them outside the hive. Both appear to be of the erroneous opinion that all the parts of a bee hive are heated by bees in a similar way as a room is heated by a stove.

When a colony is dispersed over the whole of the interior, the temperature no doubt is pretty well equalised; but when the temperature is falling and the bees crowd together to form a thick round cluster, they impart just as little heat to the empty or unoccupied

space of their hive as a person wrapped up in his bed warms the room, because in both cases the radiation of heat from the warm body is so insignificant as to be altogether incapable of restoring the external loss of heat. After the thermometer had shown 13° Fahr. of frost for some days, I found that, however well the hives were constructed to retain the heat, not only was the inner surface of the doors and sides of the hives covered with hoar frost, but the combs also, whilst the bees, even at the edge of the cluster, enjoyed a temperature of at least 54°, as otherwise they would have passed into a state of torpor and died.

Bees, in whose economy the most profound wisdom is manifest in order to preserve their strength and to save honey, do not, of course, maintain a higher degree of temperature than is absolutely necessary for their existence, but a much higher degree of temperature, whether natural or artificial, does not affect their well-being, as is shown by their thriving in Brazil, where they enjoy during the time of repose a temperature, not of 54°, but of 100° and above. Just as with us, so rest in the bee hive is entirely independent of the height of the thermometer. Their rest is conditional. It makes no difference whether the cessation of vegetation be caused by severe cold or excessive heat.

The view, therefore, which Pastor Schönfeld defended at the time when the dispute was going on as to whether bees should be kept warm or cool in winter, and according to which view a certain degree of cold is necessary in order that bees may be kept in undisturbed repose and survive the winter in good condition, is altogether fallacious. It is their instinct, a custom which has become a second nature to them, because there are no flowers to be deprived of their honey or to be fertilised, which keeps bees from making fruitless excursions, occasional flights to cleanse themselves always excepted, and induces them to keep perfectly quiet even during the most inviting days in autumn and winter. In 1833 to 1834 there was really no winter at all. On the coldest day, the 6th January, the thermometer stood at 13½° Fahr. below freezing point. The Hazel flowered in January and the Gooseberry in February. Winter, as it were, was succeeded by spring, and the bees wintered admirably. Last year the winter was likewise tolerably endurable, and consequently the bees wintered satisfactorily. I wonder whether a bee-keeper ever complained of a winter being too mild, and wished for colder weather for the sake of his bees? Everyone who is concerned about his colonies wishes the frost a thousand miles away.

It surpasses my understanding, and I can scarcely find words to express my surprise, that an intelligent man like Dr. Krasicki in the last October and November number of the *Pegazstar*, "Bee-Keeper," a periodical edited by him, and published at Gnesen, should ascribe the numerous losses of colonies during the long and severe winter of last year but one solely to too high a degree of temperature in the hives during the winter. After reciting the numerous lamentations published in the *Bienenzeitung* and other bee journals, he exclaims—"The German bee-keepers have suffered these losses in consequence of their following the advice of their veteran master, who says that a bee hive can never be too warm, as bees do not raise the temperature above the point conducive to their well-being." But Dr. Krasicki says 10° more of cold are preferable to 1° of heat. The bees on which Dr. Krasicki has made his observations would require to possess the nature of a polar bear, and to have originally come from the polar regions, if his observations and inferences are correct. They are quite incorrect as regards our German bees, which, as I have stated, winter the more satisfactorily the milder the winter is, and on the setting-in of severe cold are all the better the more securely they are protected against it—i.e., the less the escape of heat which they are obliged to generate themselves continuously. It is well known that in double or quadruple hives bees prefer to arrange their winter quarters against the board which divides the compartments, because the temperature on the other side is the same, and there is no loss of heat at all.—DR. DZIERZON.

(To be continued.)

TRADE CATALOGUE RECEIVED.

William Paul & Son, Paisley.—*Catalogue of Florists' Flowers.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—We are compelled to postpone replies to "W. E. B." (Packing Flowers), "R. B." (Gravel Walks), "Brookfield" (Vines for Small House), "Vero" (Cyclamens and Hyacinths), "S. F." (Acacia and Tropæolum), "W. X." (Spots on Pelargoniums), "Inquirer" (Dreich for Cows), and "B. A. Z." (Rhodanthus), until next week.

Books (J. C.).—We do not know an inexpensive work more suitable for your purpose than an illustrated manual entitled "Agrostographia," published by W. Blackwood & Sons, Edinburgh and London. We do not know the price of this work.

Pimento—Eugenia Pimenta (Crawfordian).—The seeds should be sown in light sandy soil in a well-drained pan or pot, plunged in a hotbed or ordinary propagating frame where a high temperature is maintained. When they have germinated and the young plants are well advanced in growth, pot them singly in small thumbs or 60-size pots, employing a compost of light turfy loam, sand, and leaf soil. Place the plants in the stove and repot them as they advance in growth, employing similar soil.

Greenhouse Annuals (E. T.).—There are very few, strictly speaking, greenhouse annuals that can be grown in pots in a greenhouse suitable for your purpose; but if half-hardy annuals are eligible, then you may add such as Stocks, Phlox Drummondii, French and African Marigolds, Salpiglossis, Dianthus Hedderwigii, and Indian Pinks, Petunias, and Lobelias (grown as annuals), Amaryllis caudatus, Nasturtiums (Tropæolums), to such plants as Balsams, Celosias, Martynia fragrans, Gomphrenas, and Browallias. Whether such as we have named are admissible for your purpose or not no one can say without seeing the schedule and knowing the meaning of those who framed the class.

Insects on Cucumbers (Market Grower).—Judging from your letter we have little doubt it is the thrips that attacks your plants. We, however, submit a figure and description which will enable you to decide the matter for yourself. The drawing represents this insect highly magnified, while the short line upon the scroll intimates its natural length. The larvæ and pupæ are yellowish white, and the perfect insect is of a dull deep black, with the point, and sometimes the whole of the abdomen, of a rust colour; the wings are dirty white, the horns and legs yellowish, the extremity of the former black. It attacks plants by piercing the under side of the leaves, and one often sees at the tip of the tail a globule of blackish fluid which it soon deposits, and by innumerable spots of this glutinous matter the pores of the leaves are stopped up, and large portions of the surface become blotched. During March the full-grown larvæ and pupæ, which are as large as the perfect insect, are found in groups feeding on the under side of the leaves, and at this time the recently hatched but perfect insect either lies close under the ribs or roves about in search of a mate. Fumigating once a fortnight the houses



Fig. 44.

in which it is present is a good means to adopt for eradicating it; and we have found that syringing the plants, &c., infested with a solution of soft soap and tobacco water is also effectual if applied once a week at a temperature of 100° or 120°. Great and often fatal mistakes are made in allowing the insects to get established before attempts are made to destroy them. If the plants are watched carefully it is not difficult to keep them clean by timely measures, and especially by sponging the leaves of Vines and Cucumbers with the above solution immediately the first insect or the effects of it is seen.

Hoya not Flowering (Violet).—Cutting down the plant in the manner you suggest would probably result in its death. If you cannot thin out the plant and train the growths thinly, we think your best plan will be to raise some young plants, either from cuttings or by layers, and grow these in pots for a year or two until they attain a good size, then destroy the old plant, and plant out as many of the others as you desire for covering the wall quickly. This we think will be the best course to pursue, as, if an old neglected plant has to be much mutilated, it does not usually grow freely afterwards.

Autumn-flowering Plants (Idem).—Liliums auratum, tigrinum, and the varieties of speciosum potted now would flower in the autumn, but whether at the precise time you desire them will depend partly on the season and greatly on the judgment that is exercised in their cultivation. Such plants as may easily be had in flower at any particular time in the autumn are Fuchsias in variety, Zonal Pelargoniums, double and single; Petunias, double and single; Balsams, Cockscombs, Celosia pyramidalis, Browallia elata, Tuberous Begonias, also such sorts raised from cuttings as B. weltoniensis, B. parviflora, B. fuchsoides, Globe Amaryllises, Salvia patens, Thunbergia alata, Lobelia cardinalis, and Cassia corymbosa. Ferns, Palms, and Coleuses would be useful as foliage plants. Are you sure the Hydrangea to which you refer is correctly named? From whom did you purchase it?

Pruning Roses (A. M. B.).—If you do not prune the Roses the blooms resulting from the buds now showing will, if they expand, be small and unsatisfactory, while the trees will be practically spoiled by long naked branches for future years. You had better prune them at once, and the lower and yet dormant buds will break readily, and produce blooms at a time when the weather may be expected to be favourable for their satisfactory expansion. We remember an early spring like the present some years ago, and our Roses were in the condition then that yours are now. We pruned them as usual; and although it appeared almost a cruel proceeding to remove such a quantity of young growths, yet we never had a better display of Roses than during the summer immediately succeeding.

Spiræas Unhealthy (J. S. S.).—The Spiræa you have sent is not S. Ulmaria, but Spiræa or Hoteia japonica. We are unable to account for the ends of the young leaves withering, except on the assumption that the plants have not at all times received sufficient water, and hence the growths have shrivelled under the effects of the sun. We have seen precisely similar results follow a deficient supply of water, and we have also seen plants injured in the same way by fumigating the house containing them with tobacco. The plant of which you have sent us leaves is a Funkia, probably F. undulata variegata, but the leaves are not sufficiently developed for proper identification.

Mulching Vine Border (F. J.).—We presume the roots of the Vine have not access to an outside border, as we think all Black Hamburgh Vine roots should when under the management of inexperienced amateurs. We can no more tell you "how often the border should be watered" than we can tell you how often you should wash your hands. Mulch the borders as you propose, but the manure need not be rich at present, and then apply water as often as the soil will crumble readily, not "eake," when a portion is grasped in the hand. Water may be applied as you suggest, sufficient being given to penetrate the entire mass of soil. You had better obtain our Vine Manual, and follow the advice contained therein so far as it applies to your case, and if you need further information write to us.

Hyacinths not Flowering (Salopian).—The fact that your friend's plants, of which you have sent specimens, were, after potting, covered with cocoa-nut fibre refuse, and have not flowered, while yours covered with ashes have been satisfactory, affords no proof that the evil is attributable to the covering material. The finest Hyacinths that are exhibited in London every year are in their earlier stages covered with the fibre in question, and not with ashes. As the growth of the plant sent is so far advanced, we cannot determine the question as to the solidity and maturity of the bulbs when they were potted. Supposing that they were good bulbs, we will point out two causes that produce effects similar to those represented in the plants before us—namely, luxuriant foliage and stunted spikes with decaying flower buds. One is leaving the plants too long in the plunging material, the other is too rich soil or other stimulants applied too soon, forcing the growth of the foliage at the expense of the flowers. We have this spring proved by experiment the ill effects of leaving the bulbs buried too long and too thickly, and some plants that we have purposely so treated are in the condition that those you have sent are, but these latter bear unmistakable signs of too generous treatment. The foliage is broad, somewhat flabby, and the darkest of dark green. Whether liquid manure applied too soon has caused this, or whether it is the result of the exceeding richness of the soil, we know not. But reasoning on the assumption that the bulbs were sound and good (for they may have been defective), we think we have indicated the cause of the present condition of the plants—namely, they have either been buried too long or overfed, while possibly they have been subjected to both these evils.

Exhibiting Hardy Plants (Idem).—All the plants you name are hardy, assuming that the Rhododendrons are of the ponticum or caucasicum type, and not Himalayan or "greenhouse" kinds; but whether they are eligible for the purpose in question depends entirely on the object of the committee in providing the class. Some of the plants you name are certainly not "spring-flowering," and they could not be had in bloom in March without much forcing, and others, we think, not at all at the time of your show; at any rate we shall be glad to see flowers of *Lilium candidum* and *Anemone japonica* in March, which we presume you will have, or you would not have sought our advice on exhibiting them then in a class for hardy spring flowers. In the case of this kind there is only one way of settling the point, and that is by submitting the question to the committee. If the object of the framers of the schedule has been to encourage the culture of hardy plants that flower naturally in the spring, say during March, April, and early May, then some of the plants named will be ineligible; but if they desire to see how many hardy plants can be forced into flower in March, then those you name cannot be excluded. But under any circumstances we think *Lily of the Valley*, *Dielytras*, *Spiræas*, and early hardy *Rhododendrons* would not be objected to by the judges, as those plants are essentially "spring-flowering." The class is very loosely worded, as it does not even state the plants are to be distinct, species or varieties.

Vines in Pots (R. C.).—If your young Vines, raised from eyes, are now in small pots, they will need shifting into larger when the roots protrude through the drainage and before they are matted closely round the sides of the pots. As you have not stated what sized pots they are in now it is impossible for us to state the next size pots in which to place them. They may, however, be two or three sizes larger. The work of potting must be done carefully and without injuring any of the roots; and the soil, turfy loam with a third of decayed manure and a free admixture of wood ashes, should be warmed before being used. Care and judgment must be exercised in watering until the roots take possession of the new soil, and then also; but at first there is danger in overwatering, still the foliage must never flag, and syringing early on fine afternoons will be beneficial. They may be stopped once when from 3 to 5 feet high according to the length of rafter. They are fruited in pots ranging from 12 to 15 inches in diameter according to the strength of the canes. It is the custom to fruit Vines in pots heavily the first season and then destroy them, having others in readiness to take their places; but with light cropping and good culture they may be kept in a fruitful state for two or more years. If you have had little or no experience in Grape culture you will find our Vine Manual of great service; it can be had from this office post free in return for 3s. 2d. Do not use the soil containing so many grubs for any purpose. They are the larvæ of a crane-fly, probably *Tipula gigantea*.

Ghent Azalea Seed (E. F.).—Your letter, as requested, was forwarded to Mr. Bardney, who has sent the following reply, which will also meet the requests of other correspondents who have sought for information on the same subject:—"No doubt you could obtain seed from any well-known seed firm, or in all probability from those who raise quantities of these plants from seed annually and have a seed establishment as well. I do not recollect seeing seed advertised of Ghent Azaleas, probably because the demand for it at the present time is very small, and few private growers raise their own seedlings, except when they save their own seed from some good kinds. The trade, as a rule, only save sufficient to obtain their annual supply of seedlings. I should not advise purchased seed to be relied upon, because the seedlings might be grown until they reach a flowering condition and then prove a disappointment. The best course to pursue, if you do not possess any good varieties, would be to purchase a few good named kinds well set with flower buds. From them you could save seed and raise the seedlings the following season, or sow as directed on page 167 as soon as gathered. Seedling plants, if obtained from any reliable source, would undoubtedly turn out well. I have seedlings of *A. mollis* in flower at the present time with blooms twice the size of those of Baron Edouard de Rothschild, which is considered a very good one, and quite equal to that variety in colour."

Raising Seedlings (Kittie).—Precisely the same conditions are requisite for raising Begonias as for raising Gloxinias, and we can only attribute your failure with the latter either to inferior seed or some accident in management, such as the soil becoming too dry and preventing germination, or a slug eating the seedlings before you saw them. Light sandy soil kept constantly moist, a square of glass over the pots for arresting evaporation, shade from the sun, a brisk temperature and moist atmosphere, are the essentials for success. Lobelias and Phloxes require practically the same treatment, but the seeds will germinate in less heat. Much seed is spoiled by covering it too deeply, and if very small

seeds are pressed gently into a smooth surface, and that surface is kept constantly moist and quite dark, the germination of good seed is certain—of course, given the necessary heat of from 60° to 80°. Light, however, must be very gradually admitted the moment the seedlings appear, or they will quickly perish. *Calecolaria* seed is sown in July or August, and instead of the pots being placed in heat, as a dry greenhouse, the greatest success is attained by placing them in the most cool and moist position that can be found, such as under a handlight on the north side of a wall or building, the pots being placed in large saucers or pans of water. The soil is then kept continually moist by capillary attraction, and it is not necessary to apply any water to the surface of the soil until the seedlings appear—a matter of great importance in the germination of all very small seeds. The soil for *Calecolarias*, in fact for all the plants you name, may be the same as that in which you successfully raise *Gloxinias*.

Profits of a Garden—Vague Questions (J. W.).—We receive many singular questions during the course of the year, and always do our best to answer them; but some in their nature, and others by the vagueness of language employed in propounding them, are unanswerable. You have contrived to embody two difficulties in the fewest possible number of words, which we quote—"What may be taken as an average profit from a garden fairly managed of, say, one acre, and an orchard of one acre." We take it as a compliment to be supposed competent to answer a letter of that kind satisfactorily. First, the subject of estimating the profits of land is difficult in itself, and it is simply rendered impossible when no data whatever is given to enable us even to consider the subject as bearing on this particular case. We can only say generally that the site, the soil, the position, the locality (whether favourable for the sale of produce or otherwise), the judgment exercised in management, all affect to a more or less serious extent subjects of this nature. Even with good management some gardens can scarcely be rendered remunerative, while others will produce crops in some seasons worth £100 an acre. The question referring to the orchard is even more indefinite. Some orchards, consisting of decrepit trees and worthless varieties, are not worth the space they occupy; others are unremunerative because the trees have not arrived at a bearing state. Some fruits are more profitable than others, according to the districts in which they are grown—an aspect of the question on which you are strangely silent. For one reason we are glad to have your letter, as it has enabled us to point out the difficulties we have to contend with in replying to questions which are, for want of thought, submitted to us in a manner that totally precludes their being answered satisfactorily either to our querists or ourselves. We are most willing to aid all who seek our advice, but we can only do so when they afford us the means of understanding each case, and the influences as far as possible by which it is affected.

Libonia floribunda Culture (B. A. Z.).—A successful cultivator of this plant treats it as follows—"Small bushy plants laden with their pretty orange scarlet tubular flowers are valuable for dinner-table and room decoration, producing a very charming effect. It is also suitable for arranging amongst other plants in the conservatory. Unless large specimens are required small plants are the most useful for general decorative purposes. After flowering they should be pruned and placed in heat. The young shoots when an inch long make good cuttings, and should be inserted in light sandy loam, the pots being placed in a moist gentle bottom heat. When the cuttings have rooted they should be transferred singly into 2½-inch pots, employing a compost of two parts turfy loam, one part leaf soil, and one part well-decomposed manure, with plenty of sand to render the soil porous. After potting the plants must be kept in a close house and shaded for a few days; afterwards assign them positions near the glass, with full exposure to the sun, in a temperature ranging from 65° to 75°. Syringe them twice on fine days, and frequently pinch the points out of the shoots to induce the plants to become dwarf and bushy. As they increase in size they must be potted, employing pots an inch larger each time. About the end of June they may be gradually barded off and placed in cool pits or frames, which must be ventilated freely on bright days, and supply the plants with plenty of water; liquid manure may also be given two or three times a week with beneficial results. About October the plants must be taken in the greenhouse, where they thrive in a temperature from 45° to 55°. By the end of November they will commence flowering, and will remain in great beauty till March." In your mild climate the plants would thrive well planted out in June in a sunny position, repotting them in September. If not planted out, the old plants after having been pruned and fresh growth started may be partially disrooted, repotted, and treated as recommended for young plants.

Egg Plants (Idem).—These are stove plants, and cannot be raised and grown well without the convenience of a frame or house having a minimum temperature of 65° to 60°. A cucumber frame is suitable for raising the plants and growing them in their early stages, afterwards placing them on the shelf of a stove. When fully grown and fruiting they will succeed in a conservatory or greenhouse. Sow the seed in March or early April. When the seedlings are large enough pot them in clean well-drained 3-inch pots, shading if needed for a day or two, watering when needed with warm water, and treating them generally the same as cucumber plants. The soil above mentioned for *Libonias* will be suitable. When the roots protrude through the pots, and before the plants are root-bound, shift them into pots two sizes larger, using a little stronger soil than before. They can be again repotted if large plants are required. Apply water with care at the first, but when the pots are filled with roots copious supplies will be needed, and clear liquid manure occasionally. Syringe them regularly during the summer, as they are much liable to the attacks of red spider. In hot weather in summer the plants succeed in a pit or frame, the ashes on which the pots stand always being kept moist, and the lights closed early in the afternoon, syringing the plants freely; but if the pots can be plunged in gentle bottom heat afforded by leaves, manure, or tan, it will be to them an advantage.

Names of Plants (No Name).—1, *Echeveria retusa*; 2, Specimen insufficient without fructification; 3, *Sparmannia africana*; 4, *Acacia armata*; 5, resembles a vigorous form of *Acacia lineata*. (C. B. B.).—2, *Scilla amœna*; 3, *Scilla bifolia alba*; 4, *Scilla siberica*. The other specimens are insufficient for determining their names. (K. Fork).—1, *Oneidium Krameri*; 2, *Dendrobium luteolum*; 3, *Asplenium eicutarium*; 4, *Adiantum farleyense*. (R. S. V.).—1, *Begonia manicata*; 2, *Lachenalia tricolor*; 3, *Lachenalia Nelsoni*. (F. Survey).—1, *Anemone fulgens*; 2, *Cydonia japonica*; 3, *Crocus Sieberi*. (W. R.).—1, *Adiantum tetraphyllum*; 2, *Davallia canariensis*; 3, *Hymenophyllum hirsutum*; 4, *Trichomanes trichoides*; 5, *Doodia caudata*; 6, *Ceterach officinarum*. (G. H.).—1, *Coelogyne cristata*; 2, *Coelogyne cristata Lemoniana*; 3, *Dendrobium Brymerianum*; 4, *Dendrobium nobile*; 5, *Dendrobium Ainsworthii*.

COVENT GARDEN MARKET.—MARCH 15.

TRADE very quiet, with forced fruits and vegetables lower, Grapes alone maintaining their value. Rough vegetables plentiful.

FRUIT.							
		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	0 to 6	0	Lemons.....	½ case	12
Apricots.....	doz.	0	0	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	0	0
Currents, Black	½ sieve	0	0	0	0	0	0
" Red.....	½ sieve	0	0	0	0	0	0
Figs.....	dozen	0	0	0	0	0	0
Filberts.....	½ lb.	0	0	0	0	0	0
Cobs.....	½ 100 lb.	50	0	60	0	0	0
Gooseberries	½ sieve	0	0	0	0	0	0
Grapes.....	½ lb.	6	0	12	0	0	0

VEGETABLES.							
		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1
Asparagus.....	bundle	9	0	10	0	0	2
Beans, Kidney...	½ 100	2	0	2	6	0	0
Beet, Red.....	dozen	1	0	2	0	0	0
Broccoli.....	bundle	0	9	1	6	0	0
Brussels Sprouts..	½ sieve	1	3	1	6	0	0
Cabbage.....	dozen	0	6	1	0	0	0
Carrots.....	bunch	0	4	0	6	0	0
Capsicums.....	½ 100	1	6	2	0	0	0
Cauliflowers.....	dozen	1	0	3	6	0	0
Celery.....	bundle	1	6	2	0	0	0
Coleworts.....	doz. bunches	2	0	4	0	0	0
Cucumbers.....	each	0	9	1	0	0	0
Endive.....	dozen	1	0	2	0	0	0
Fennel.....	bunch	0	3	0	0	0	0
Garlic.....	½ lb.	0	6	0	0	0	0
Herbs.....	bunch	0	2	0	0	0	0
Leeks.....	bunch	0	3	0	4	0	0

		s. d.	s. d.			s. d.	s. d.
Melons.....	each	0	0	0	0	0	0
Nectarines.....	dozen	0	0	0	0	0	0
Oranges.....	½ 100	4	0	6	0	0	0
Peaches.....	dozen	0	0	0	0	0	0
Pears, kitchen..	dozen	1	0	1	6	0	0
" dessert.....	dozen	0	0	0	0	0	0
Pine Apples.....	½ lb.	1	6	2	0	0	0
Strawberries.....	per oz.	0	6	0	9	0	0
Walnuts.....	bushel	7	0	8	0	0	0



POULTRY AND PIGEON CHRONICLE.

CROSS-BREEDING HORSES.

THIS subject is of great importance, probably more so than at any former period, for some types of useful horses for general purposes are almost lost to us at present, and we have unfortunately no special breed of pedigree to replace them, hence if we require useful horses they must be obtained by crossing. The plan adapted for obtaining them, and mating the animals for the purpose, is frequently but little understood by farmers, therefore it is necessary that the correct principles of cross-breeding should be both scientifically and practically set forth, and which is our present purpose.

Breeding farm horses was discussed in this Journal on the 30th of January, 1879. We shall, therefore, now chiefly refer to the obtaining by crossing such breeds of horses as are most in request and most difficult to obtain. In order to the attainment of our object we must consider the influence of the male parent and the female parent separately, so far as they each influence the style and character of the offspring. In the majority of instances that the male parent governs the size and external shape, especially in the back and hind quarters of the offspring, whilst the female influences the constitution, the nervous system, and often the head and fore quarters; the reverse, however, occurs occasionally, but much more frequently when mating animals the pedigree of which are unknown. Animals without any tradition, especially those of the first cross, are liable to breed back as it is called, and, instead of producing their like, exhibit in their progeny the various characteristics of former generations, hence the necessity or advantage of pedigree. We have, however, no pedigree which can be depended upon of any special breeds, such as hunters, hacks, and carriage horses; neither can we find a pedigree of sufficient importance connected with the cob horses, whether of Norfolk trotting blood or of the Galloway, Scotch, or Irish animals, the general height of all these being about fourteen hands, but stout in proportion, with plenty of bone and high action. But to be sure of our progeny when mating the race-horse or Arab with good mares of pace, substance, and endurance, we are more likely to obtain in the offspring good hunters and hacks, and frequently first-class animals for harness. When

weight-carrying animals are required we must be sure and select sires which show full blood in their pedigree, and great substance and power in their shape, make, and bone.

The mating of first-rate racing blood horses with half-breed mares is not always to be depended upon for the obtaining of first-class hunters, for we can find examples which are always more telling than precepts, and propose to adduce a few instances of successful breeding with half-bred horses and well-bred mares, and the reverse. A friend of ours rode a mare for some twelve years without her making a mistake; she was good in all her paces, a fair hunter, excellent jumper, and a capital hack. She was bred from a three-parts-bred mare (a good hunter) by a young half-bred horse, pedigree unknown or forgotten. Her dam afterwards bred three other colts by thoroughbred sires, none of which proved of any value; they could not carry weight, and none of them paid the expenses of rearing. This shows that without pedigree of long standing the results are very uncertain. Another instance in which a rather heavy but active and useful cart mare belonging to the same owner bred two colts by thoroughbred horses, neither of which repaid expenses. They had the bodies of the dam and the legs of their sires. Another gentleman had a splendid trotting mare that he regarded as very valuable, for she had substance, showed plenty of breed, and was good in all her paces as well as the trot. After some years she was devoted to the stud, and bred five foals, the first by a good half-bred horse, and the others by different thoroughbred horses. Her first foal showed much more substance than any of the others, made a good price, and proved a valuable animal during her day. Not one of the others repaid expenses. One proved a clever animal for a light weight, but none possessed sufficient substance to be anything like as valuable as the mare. In continuation of examples we must introduce a case in which a small but very neat mare almost thoroughbred was mated with a large Yorkshire trotting stallion, and the produce was sold at three years old for £60; when afterwards the same mare was mated with thorough stallions the stock was all deficient in substance, and consequently unprofitable. We have, we think, given sufficient instances of cross-breeding to show the bad policy of using thoroughbred stallions for the purpose of obtaining good useful hacks, hunters, &c., unless they happen to be animals of great power and substance, and can be shown to have a good pedigree.

Having stated that in cross-breeding the tendency of the female influence on the offspring was to affect chiefly the constitution, the nervous system, and frequently the head and forequarters, we can support this statement by an instance which occurred in our management some years ago. On entering the occupation of a farm we found a valuable cart mare of very great power and substance; but it was said that she was sometimes rather nervous and inclined to kick and gib, which she did once in our presence and overturned a load of hay. She had, it was stated, bred three colts from three different matings, and these colts had each proved kickers. We, however, knew of a celebrated stallion, and resolved to try once more to obtain a quiet good-tempered colt. The result, however, proved hopeless, for on endeavouring to break-in the colt for team work we could do nothing with it, and it was disposed of to little purpose. This case should be considered as a warning to breeders, that whatever may be the power and beauty of the female, that good temper must always be considered indispensable and a leading point in cross-breeding, but more especially with hunters, for hot-tempered animals when used in the chase are always uncertain and dangerous to the riders.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The season is now so far advanced that the Lent corn should now be sown as soon as possible, and in the rotation as follows—Barley first, Black Oats or drage next, then White Oats of the early varieties upon the best land; but upon ordinary soils not in the highest condition the White Waterloo or the White Tartars of the improved sort. Both of these are good croppers, and the straw is very valuable for feeding cattle and chaffing for horses. The Peas and Beans, or the mixed crops of Beans with small Partridge Peas or winter Vetches, have ere this been sown, but summer Tares may still be sown for a succession of green fodder at harvest and in the autumn. These should have a portion of White Tartar Oats sown with them, which holds them off the ground, facilitates cutting, preserves the portion near the ground, and at the same time shields them from the blight or red rust to which Tares are specially subject, and which injures them as food for stock.

The horses as well as steam power should now be employed in preparing the land for Mangolds as soon as the Potatoes are planted, and the Carrots afterwards. We prefer planting Potatoes in March, sowing Mangold seed in April, and Carrot seed in May; but under any circumstances the two latter should be sown while the ground is moist enough for the seed to germinate immediately. We have, how-

ever, frequently grown abundant crops of both Mangold and Carrots after a crop of Trifolium has been cleared off for cattle or sheep-feeding; but the land should be ploughed and drilled the same day with either Carrots or Mangold. To save time portable hand manures only should be applied, as yard manure takes time in carting and spreading, but one of the great advantages of artificial manures is the facility of application, as well as the saving of time. The growth of Mangolds and Carrots as a double crop in alternate lines answers well, because the Mangold plants form much foliage and spread over a large surface, whereas the Carrot requires but little room, having but small foliage; its roots, however, penetrate deeply where the soil is loose, but if not, the White Belgian variety will grow much out of ground and give a good crop. The Mangold plant forms more roots near the surface, thus the character and growth of the roots under ground and above are both different, and the combined crops answer well, especially when cultivated on the stretch, which facilitates horse and hand-hoeing at any stage during the growth of the crop. We have sown our early white Oats and Barley upon very forward dry soil, and we expect to harvest them a fortnight before the Wheat is ready. Two advantages therefore are obtained—the quality of the straw, and the opportunity of growing a crop of stubble Turnips, or an autumn cutting of Clover if the crop was seeded. Rolling on the parkland and pastures should now be done before the land is too dry and hard.

Hand Labour.—This is in a forward state both as regards the work for men as well as light work suitable for women. The routine work of the farms has had but little hindrance by the weather, such as hedging, trenching, filling dung, preparing and planting Potatoes, breaking and screening guano in readiness to be applied to the Potatoes now being planted, and the Oats. We, however, prefer to purchase manures specially prepared for certain crops, because the workpeople do not take the trouble to properly amalgamate the manure and in due proportion. But we must deal with a firm of manure vendors of established character, the articles being guaranteed to contain the required proportion of manures by analysis; in doing this we not only save the time of the workmen, but obtain the manures adapted for the crops of every kind. Upon all those farms where a good quantity of Swedish Turnips has been grown they are now throwing up their leaves fast, and where required for feeding purposes in April and May the women may now be employed in crowning down the roots, as we call it, by cutting off the stems down to the crown level with the rim formed by the fall of the first leaves. In this way we have preserved the roots in the land, and fed sheep on them as late as the 23rd and 28th of June, and in one year as late as the 4th of July, the Swedes being in capital condition. When cut close with the fagging hook they are unable to make any growth. They also make but few fresh roots, and thus the feeding value is retained. This was our plan many years ago, but now we prefer to grow Mangold for summer feeding.

Live Stock.—The long-woolled ewes will now be lambing, and at this time of year with ordinary care but little loss will occur in the absence of the epidemic lameness, and the grass will be forwarder than usual to receive the ewes and their young lambs. Italian Ryegrass and Mangolds, liberal feeding with oil-cake or cotton-cake for the ewes, and cracked beans with linseed cake for the lambs, giving the cake, however, in the meal state with bean meal mixed with cut Mangold is the perfection of lamb-feeding. The early-horned ewes have done well, and where they lambed in due course the lambs are nearly all sold, and the ewes also are nearly ready for the butcher, and to finish them off in prime condition cracked beans and cake is the best food, as it makes the flesh firm—a matter of great importance in those ewes which have reared their lambs. The dairy cows may now run on the pastures and parkland, going into the stalls at night-time, and they now should receive a full allowance of undecorticated cotton cake, for this will prevent the tendency to diarrhoea whilst the grass is young and Mangold forms part of their food. The fattening bullocks in the boxes should now have a full allowance of cake and bean meal mixed with their roots, the latter not exceeding 56 lbs. of Mangold per day; the former should not exceed 4 lbs. of cake and 2 lbs. of bean meal per day, and sweet oat straw *ad libitum*. Bullocks, now hay is dear, cannot be fed to profit with it, except in those districts where sweet and good straw is nearly or quite as high-priced as hay. All the young heifers and steers in the yards should get a fair allowance of Mangold and straw, otherwise the most inferior hay, always, however, giving each animal about 3 lbs. of cotton cake in addition, for they should not run on the pastures until the first week in May, or until there is a surety of a good succession of grass. These, especially on some farms, when sent to grass very early are subject to the quarter-ill, the most fatal and difficult disease the farmer has to contend with in his young cattle. Working horses should still be allowed about 10 lbs. of roots per day each in addition to hay and corn, and until green fodder such as Rye, &c., is ready for fodder. Pigs may now be fattened with meal and Mangolds pulped, gradually diminishing the Mangold as the animals approach maturity, or as they become fat enough for the butcher.

The reports of the health and condition of all kinds of stock from every district are very favourable, and the stock, too, such as fat lambs, sheep, and calves, as well as bullocks, are selling at a satisfactory price. The supply of all cattle food, instead of proving a scarcity as was apprehended at Christmas, has proved to be abundant, and is now equal to any emergency without being called

upon to buy large quantities of cake, &c., as was the case at this period last year. The foot-and-mouth disease still lingers in some counties, and cattle ought not to be allowed to come out of the metropolitan boundaries alive. This is a great evil.

POULTRY AND PIGEONS

POULTRY IN CONFINEMENT.

IN answer to "INQUIRER" on page 186, I can only say that my nine hens comprised five Silver-spangled Hamburgs, one Golden ditto, and three mongrels, with a Silver-spangled cock. I feed them only twice a day (at nine in the morning, and four in the afternoon), and then only give as much food as they will readily pick up—*i.e.*, about 2 ozs. for each bird; Indian corn and barley alternately. Any food given above what they will readily pick up I consider wasted. I always have the potato peelings and other seraps boiled and mixed with crusts of bread, &c. They are given to them hot for the morning meal, and in very cold weather a little cayenne pepper is mixed with it. My wire run is about 9 yards long by 3 wide, which, with their roosting place, is always kept clean, and supplied with clean water and green cabbage, and they get an occasional run out. Should "INQUIRER" wish I shall be glad to show him my humble poultry farm, or correspond privately with him.—S. TAYLOR, *Acacia, Apperley, Leeds*.

P.S.—I must add that a heap of dry earth or ashes should be kept and given the fowls, so that they can have their favourite and necessary dust bath.

CONDITION IN POULTRY.

OUR attention is drawn to this subject by the inquiry of "E. P." on page 186, who certainly gives a somewhat deplorable account of the state of his poultry yard through this winter, so favourable to poultry in general. What may be the particular cause of failure in this instance we are unable to determine without more precise details. We ought to know the breed, the number of birds kept together and to the acreage, the time during which fowls have constantly been kept on the same ground, and what the system of feeding is. Answers on these particulars would alone enable us to satisfy ourselves in giving advice. The question, however, leads us to the wider one of condition generally in poultry, about which we will say a little, dividing our subject into two headings—1, Condition of chickens; 2, Condition of breeding stock.

1, Chickens should always be kept fat; their rapid growth of frame and feather causes a great drain upon the system for the first six months of their lives. How to keep them so has so often been discussed in our columns that it is needless for us to reiterate our instructions. They must have something to fall back upon, otherwise they easily succumb to fits of inclement weather or to the many diseases of chickenhood. Our inquirer says that his birds, as chickens, suffered from coughing and sneezing, and have never got over it. Such coughing and sneezing is by no means an uncommon malady in half-grown chickens; but experience has led me to think that it is, in the first instance, a very slight one—not more than a cold in a human being, and that if it lasts any length of time, specially if it lasts over to the next year, as in this case, the cause is more deep-seated than it appears, and that in reality the chickens have been weakly subjects, ready to fall a prey to any disease. We should certainly first inquire if the stock has been bred "in and in." Apparently our correspondent breeds for use and not for feather; if so, it is extremely desirable that the stock should frequently have fresh blood introduced. Then, are the runs perfectly sweet and untainted, the house dry, well ventilated, and free from vermin? If houses, and still more if sitting nests, are left filthy, vermin almost invisible will attack every brood directly it is hatched; the chickens soon cough and sneeze, not from cold caught by exposure, but from an affection analogous to "hay fever" in human beings, which simply attacks them because they are weak. Even with all our precautions about ventilation and cleanliness, and giving fresh runs and plenty of room to our broods, we not unfrequently are troubled with this sign of weakness in them through the summer months. The well-known tonic is administered and the coughs soon are cured, save perhaps in the case of one or two constitutionally weak birds, which we then have killed and buried.

It may be well here once more to give the recipe for the tonic restorative, which we believe was originally prescribed by Mr John Douglas, and which has for many years been the boon of many a fancier. "One pound of sulphate of iron, one ounce of diluted sulphuric acid, dissolved in a jug with hot water; then let it stand twenty-four hours and add one gallon of spring water. When fit

for use, one teaspoonful of the restorative to a pint of water, to be given every other day to chickens, and once a week to adult fowls." Occasionally in unfavourable seasons and with chickens hatched late in the summer we have found the coughing not yield to this remedy and good feeding, but the bracing of the first frosts have then always cured it, or the chickens have gradually outgrown it as the winter has advanced. If they do not, we should always feel pretty certain that the evil had to be sought further than in the immediate management of the chickens, and that it lay in some of the causes we have mentioned, such as in-breeding, tainted or crowded ground, or ill-ventilated houses.

To have healthy chickens it is absolutely necessary to have healthy parents. Many people think that so long as fertile eggs are laid and hatched all is well, and that accident or mismanagement can alone prevent the success of the broods. This is a great error. We well remember a year in which we could hardly rear a chicken. The season was not cold, our chickens had almost unlimited runs, were cooped on sunny banks with plantation behind and paddock before them, their attendant was a most trusted henwife. The broods hatched fairly well, the chickens looked unusually plump and strong at first. We could not for a while conceive the cause of this disastrous failure under apparently the same circumstances that had often brought us great success. At last we discovered it. Several laying hens died suddenly, an examination followed, and revealed the fact that during our absence through the spring the over-kindness of the feeder had ruined the breeding stock by overfeeding. The hens laid eggs which hatched; but something was wanting in the development of the chickens. They were what in adults would be called "down behind." Some of their organs were apparently not properly developed; they could not digest food, took diarrhoea in a day or two, and died by scores. Breeding stocks at this time of year, at least the hens, must be kept rather thin than fat. The cocks require more nourishment, and should, if possible, be fed apart from their wives. Chickens, on the contrary, must be kept always plump. We observe that our inquirer speaks of having given "Beach's food," but says that such things are expensive. Good food is never expensive, though, as we have often said, we do not recommend spiced stimulants, but much prefer "Spratt's food," which, as far as we know, contains much more real nourishment and much less exciting properties than other patent foods. However, whether this be used, or solely plain oatmeal, barleymeal, and corn, it is, in the long run, economy to buy the best, and to give it without stint to the growing stock. Imagine the loss of keeping all through the winter a yard of birds which lay no eggs! Through such a season as we have had every young and good hen ought at least to have laid six pennyworth of eggs a week. With a free range, or at least an occasional free run, many hens should have brought in considerably more than this where there is a town market for eggs. The secret, however, of keeping a profitable stock is to know and observe just how long chickens require feeding up, and then as the pullets develop into hens to change their diet to that of breeding stock.—C.

THE GAPES IN CHICKENS.

In the *Journal of Horticulture* of February 23rd, there are some remarks on the gapes in chickens, and you invited information from your readers as to the cause and cure. As to the cause. I think very few, if any, can say positively what is the origin of the tiny red thread-like worms, of which I have often taken from twenty to thirty from the windpipe of a dead chicken. It is certainly not, as many assert, from stagnant water, as we have not any about the place; nor is it from overcrowding, as our poultry have an unlimited run. Some neighbours of mine never have it, and some are troubled like myself. As to the cure I can speak more positively, as I now seldom lose a chicken from gapes. We use a small vaporiser with carbolic acid, sold by Messrs. Savory and Moore, chemists, New Bond Street, London. As soon as even one chicken of a brood looks droopy we place the vaporiser and chicks in a garden handglass with moveable top, and when the chicks look stupified we lift them out. If this is persevered with once or twice a week until the chicks are about a month old they will go on all right. They must be well fed, and have little often and fresh. The vaporiser used in coops and pens destroys all the insect pests belonging to fowls. I shall be glad to give any further information I can at any time.—AN OLD SUBSCRIBER.

A CURIOUS EGG.

NOTICING a very long egg amongst others from some pure-bred Brahma hens I had the curiosity to open it. At the smaller end, embedded in the "white," was another egg about the size of that of a dove's. The shell of this enclosed egg was of a dark colour, and its surface very rough. This second egg was found to con-

tain both "white" and yolk as in a normal egg. How can this curiosity be explained? In the first place we must suppose a very small yolk to have been discharged from the ovary, just as so frequently occurs when small eggs are laid. The yolk then obtained the coating of "white" and shell as in the ordinary way. When, however, it reached the lower portion of the oviduct, after having received its shell-covering, and instead of being passed on into the common cloaca and laid, it must have travelled back again along the oviduct by some reversed peristaltic action of this canal into the first portion of the oviduct, where another yolk was advancing. In this way the small but perfect egg would get a coating of "white" in common with the large yolk, and then the whole passing into the third portion of the oviduct would get the usual shell. This reversed action of a muscular tube like the oviduct is not at all uncommon, and seems the only method of explaining what will be generally admitted as a curious egg.—T. FREDERICK PEARSE.

[We have several times seen a small egg enclosed in a large one, but there was never more than one yolk, and on one occasion there was no yolk in either shell. All such occurrences denote either that the egg-producing organs are out of order, or that the hen is about to stop laying.]

THE INCUBATOR LIBEL CASE.

A STATEMENT appears in your report of the Hemel Hempstead incubator libel case which is erroneous and likely to mislead your readers.

You state that—"Prior to the meeting of the Poultry Club Committee at Oxford in June, 1880, Mr. Peel had Miss Arnold's letter containing the alleged libel and his reply thereto printed. Copies of this print were forwarded to the Secretary of the Poultry Club, and apparently also given to members of the Local Committee at Hemel Hempstead, and in this way the fact of Miss Arnold having written such a letter became known to the plaintiff, who shortly afterwards commenced the present action." As a matter of fact, the plaintiff first saw Miss Arnold's written accusation against him at a meeting of the Incubator Tournament Committee specially convened for its consideration on Friday, January 9th, 1880, when the following resolution was passed—"In reference to the charges brought against F. G. Twigg, the Committee are satisfied that there is in truth no foundation for them, and as they are clearly libellous they consider he will only be doing his duty if he clears himself from these unfounded aspersions by seeking the protection of the law."

I have the minute-book of the Incubator Tournament Committee in my possession, and was ready to produce it at the trial had I been called upon to do so.—J. HUCKLE, Assistant Secretary to the Hemel Hempstead Incubator Committee.

[Our statement of the facts was founded upon the evidence given at the trial as we understood it. The resolution quoted by Mr. Huckle was not, so far as we are aware, put in evidence.]

OUR LETTER BOX.

Leg Weakness (A. G.).—Too rapid growth, or the want of sufficient bone-forming material in their food, is the cause of your chickens going down on the legs. Give nourishing food, such as oatmeal, and try the effect of a little bone-meal mixed with the soft food.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
March.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			Inches.	deg.			deg.	deg.	deg.	deg.	deg.		In.
Sun.	5	29.772	46.0	43.5	S.W.	41.2	52.8	32.4	74.0	30.0	0.020	
Mon.	6	29.790	48.4	42.9	N.W.	42.8	52.7	45.3	88.4	39.8	—	
Tues.	7	30.228	48.0	45.9	S.W.	42.4	54.3	34.6	58.5	28.7	—	
Wed.	8	30.249	51.3	49.2	W.	43.7	56.6	47.0	70.7	41.0	—	
Thurs.	9	30.346	51.4	49.6	W.	44.9	55.3	48.6	69.7	46.2	—	
Friday	10	30.318	50.5	49.4	S.W.	45.8	55.7	48.7	63.9	47.3	—	
Satur.	11	30.455	50.7	48.5	N.	46.4	55.4	48.7	65.7	43.6	0.113	
		30.165	49.5	47.0		43.9	54.7	43.6	70.1	39.5	0.135	

REMARKS.

5th.—Fine till evening, then showery.
6th.—Very fine bright day; moonlight night.
7th.—Overcast, slight showers in forenoon.
8th.—Strong wind; fine, mild, calm evening.
9th.—Fair, with strong gusty wind.
10th.—Overcast, but fair.
11th.—Calm; fair until 5 P.M., then very dark and rain.
Temperature much higher than last week, and considerably above the average.—G. J. SYMONS.



23rd	TH	Royal Society at 4.30 P.M.
24th	F	Quekett Club at 8 P.M.
25th	S	
26th	SUN	5th SUNDAY IN LENT.
27th	M	[11 A.M., Promenade Show.
28th	TU	Royal Horticultural Society, Fruit and Floral Committees at
29th	W	Royal Botanic Society's Spring Show.

THE APPLE ELECTION.

HASTEN to thank Mr. Killick for the pains he has taken in collecting lists of Apples, and further for the remarks he has attached to those lists. I venture to think that in five years' time several varieties will change places, and can only account for some old sorts being very high up in the lists because they happen to be better known. Keswick Codlin, Hawthornden, and Cellini stand respectively fifth, sixth, and seventh; while three Apples far their superiors are below—viz., Stirling Castle, Winter Hawthornden, and Ecklinville Seedling. The Duchess of Oldenburgh will, I doubt not, hold a higher place, as will Annie Elizabeth, in the estimate of which I fully agree with Mr. Killick.

I find that Lord Suffield does well on a sandy loam, but I wish it were more robust. I noticed that one tree situated low in the garden, where water after a storm was apt to remain, had begun to look feeble. I put a stone drain in 3 feet from it, so that in future the ground would not be sodden. This tree is now among my best. Canker seems to be inherent in some varieties, but intensified by frost and increased by damp. Ribston Pippin in the open always cankers, but give it a wall—and it deserves one—thus protecting it from frost, and I have known it perfectly healthy. Wellington (Dumelow's Seedling) on the same soil is perfection, but I learn that if it touches gravel it cankers. I saw it recently in an orchard in Somersetshire much cankered. Near it, however, was Tom Putt, which keeps as well, is very much like it in appearance and size, cooks admirably, but is not quite its equal in flavour. This I learnt from testing the two sorts a few years since by baking and boiling. Now if I could not grow Wellington I would grow Tom Putt. It does well on a thinner and more stony soil, and would succeed probably on gravel.

Blenheim Pippin does for those who can afford to wait, but not for those who want early crops of fruit. Warner's King seems most desirable, particularly for exhibition; and people who wish to win prizes should also grow Emperor Alexander, which in my opinion deserved to be higher than No. 18. Cellini cankers hopelessly, which I much regret, as it is a noble Apple; but it will vanish from my garden, as Alfriston has already done, for the same reason, but I would grow both if they would but thrive. Stirling Castle is a gem of the very first water, healthy, beautiful in blossom and fruit from first setting to its appearance at table, as its flavour is excellent. Winter Hawthornden this over-mild season—over-mild for the fruit-room—has kept well with me, and I think very highly of it. Cox's Pomona

cankers. Of Ecklinville Seedling I have already spoken. It is an admirable Apple and perfectly healthy. Tower of Glamis is a favourite with me as a second-rate fruit and is very healthy. Loddington as yet I like, but my experience is not great. Beauty of Kent as a pyramid must go because it will not live on the stock I have it. Peasgood's Nonsuch grows well and is healthy, but even last year did not produce a single fruit. Golden Noble and Waltham Abbey Seedling I am trying, and they seem healthy, but not so Bedfordshire Foundling.

I turn now to the dessert list. Cox's Orange Pippin is first, and in its right place without doubt. But of this list, as of the cooking varieties, I am sure in five years several sorts will change places. Thus, Golden Winter Pearmain does not, as I judge, deserve the third place. Irish Peach is to my mind clearly ahead of all other summer eating Apples, just as Cox's Orange Pippin is of winter varieties. Worcester Pearmain I should place among the kitchen Apples.

Gravenstein will in future be higher when more generally known, for it is one of the very best Apples—transparent as porcelain, its size large, shape good, tree healthy, and flavour of fruit first-rate. Nothing but general ignorance of its merits would have placed it as low as No. 25; Red Astrachan, almost worthless save for beauty, being put eleven above it. In Summer Golden Pippin I am disappointed, and think the estimate of it in the "Fruit Manual" is too high. It may surprise many readers to hear that I have this year eaten in perfection the Cornish Gilliflower grown in Wiltshire, the tree grafted I believe on Hawthornden, and yielding a good crop. I believe it to be one of the best and highest flavoured of all eating Apples; size large, colour fine, shape unusual into the bargain. But let all growers of it remember it blossoms on the tips of its branches; hence the knife would cut off the crop. Early Julien I have not yet tried, but think of planting it on Mr. Killick's recommendation.

I am obliged to Mr. Gilbert of Burghley for his agreement with me on the subject of planting trees; and when you have the pruning knife in hand remember Mr. Wright's words, and do not become a "mutilator;" also in planting an orchard take what he says as a golden rule—"Select the varieties that succeed in your locality, and plant at least a dozen of each."

Judging from Mr. Killick's experience as shown in his remarks, I feel pretty sure that what is one man's experience in England, at least in its southern and south-western counties, will be another's. He in Kent has found out just what I have done in the neighbourhood of Bath, and with almost everything he says I agree.

I would now say in conclusion, Let all interested in Apple-growing not only make a mental note this season, but a *pencil* note as well. We forget, or remember but parts; but a word written, however hurriedly, on the side of a fruit catalogue remains. Said the poet Gray when writing to a friend (Gray appears to have always carried a note book with him), "You have nothing to do but to transcribe your little books. I make notes on the spot, and I conclude that you do not trust to memory, which is ten times worse than a lead pencil."

Watch with careful eyes; observe trees at all times; make a note diligently and accurately of anything peculiar or marked in growth, bark, habit, flowering, and the fruit on the tree, and

afterwards your satisfactory progress in pomology will be certain.—WILTSHIRE RECTOR.

[The estimate of Summer Golden Pippin above referred to was founded on fruit grown in a district which appears to be specially favourable to this variety; in some other localities we have found the fruit much less satisfactory.]

MUSHROOMS FOR THE MILLION.

IN consequence of the great interest that attaches to the production of this crop, and the difficulties too often attending it, notwithstanding the splendid results that successful cultivators attain, I have been requested to treat the subject as fully as a somewhat lengthened experience of the work and great facilities for observing the work of others enable me to do. In complying I propose taking a broad view of the matter, and prefer to regard the crop under notice as one which the greatest possible number can have a share in growing and enjoying, rather than being content to consider it as a luxury for the affluent, who alone obtain a more or less adequate supply.

When we say that the Mushroom ranks amongst the most esteemed esculents: that it is one of the most delicious and at the same time is highly nutritious—that it, in fact, approaches nearer to animal food than any other vegetable does: that the supply generally is quite inadequate to the demand, and that Mushrooms can be grown in nearly every village and in the suburbs of almost all cities and towns in this country, we must at once concede that their increased cultivation is highly desirable, and the more so since no vegetable nor fruit crop will give equal returns to the cultivator off a given plot of ground say from 20 square yards in extent to an acre. As this may appear to some readers a bold statement, it will be well to show that it is in no manner exaggerated by proving that every part of our thesis is true.

Few, it is presumed, will dispute the accuracy of the first sentence of our proposition relative to the public estimate of the Mushroom. It is generally admitted that the taste for some fruits, the Tomato for instance, has to be acquired, and it is the same in regard to some of the Fungi—to wit, the Truffle; but the taste for Mushrooms appears established, almost inherent, or at least if it has to be acquired it is usually accomplished in one or two very short lessons. The truth is, the flavour of the Mushroom commends itself to all palates, or nearly all, as readily as any other dish does that is prepared for the table; but who will say that all palates can be gratified, and the wants of all would-be-consumers of Mushrooms met in any substantial manner, except perhaps sometimes during one month out of the twelve, when the pastures happen to yield a plentiful supply? As it is impossible that this question can be answered in the affirmative we arrive at the fact—a twin fact we may term it—that the taste for the Mushroom is firmly established, but with the present inadequate and fitful supply it cannot be nearly satisfied.

Instead of the great body of consumers being dependant on the weather for a supply of Mushrooms during the short period indicated, an endeavour will be made to show how they may be obtained in sufficient quantity for all culinary purposes during more than two-thirds of the year, and that cultivators of them who make themselves proficient will reap a rich reward for their labour.

THE NUTRITIVE PROPERTIES OF MUSHROOMS.

It has been said that the Mushroom approaches nearer to animal food than does any other vegetable. This is proved by analyses. "Although," says Professor Church in his excellent manual "Food" (Chapman & Hall), "the value of cryptogamic plants generally as food is ill understood; and especially is the real nature of several kinds of fungi, which have been eaten safely, still in some measure doubtful; yet a delicate and agreeable flavour is possessed by Mushrooms, and their chief constituents have been ascertained as follow:—

	In 100 parts.	In 1 lb. ozs. grs.
Water	90.0	14 175
Albuminoides, &c.	5.0	0 350
Carbohydrates, &c.	3.8	0 266
Fat	0.7	0 49
Mineral Matter	0.5	0 35

The same authority also states that "Mushrooms when dry contain half their weight of nitrogenous matter," its exact nature, however, and feeding value not being precisely known. But what is known is that no other vegetable contains so much flesh-forming material as this esculent, while it is not deficient in heat-givers and has mineral matter in abundance.

At the first glance at the above table inexperienced readers may naturally conclude that no product can be very nutritious which contains 90 per cent. of water; but they must remember that Mushrooms are not intended to be eaten alone, nor are they so eaten, and when accompanied with bread, so far from the water being excessive, it is insufficient for the wants of man. Even meat, it must be borne in mind, often contains 75 per cent of water, while average cows' milk contains 86 per cent. and skimmed milk 89 per cent. Many vegetables also contain more water than Mushrooms do, while they do not possess nearly the same amount of heat-giving and flesh-forming properties—notably Celery, Lettuce, Seakale, Vegetable Marrows, Turnips, Cabbages, Onions, Cucumbers, and Rhubarb; therefore the nutritive value of the Mushroom must not be prejudiced by its large per-centage of water. Relative to this phase of the subject it will not be inappropriate to submit from the eminent authority above quoted the following average daily ration for maintaining an average-sized man in health:—

	In 100 parts.	Each 24 hours, lbs. ozs. grs.
Water	81.5	5 8 320
Albuminoids, or flesh-formers	3.9	0 4 110
Starch, sugar, &c.	10.6	0 11 188
Fat	3.0	0 3 337
Common salt	0.7	0 0 325
Phosphate, potash salts, &c....	0.3	0 0 170

It will thus be seen that of the total daily ration of just under 7 lbs. more than 5½ lbs. consist of water. Compared, then, with some other vegetables, and also with what may be termed this test table, the Mushroom appears to rank as an important as it is certainly a delicious article of food.

It is beyond doubt that many enjoyable and not unwholesome meals are had in which Mushrooms, when Nature provides them bountifully, form the principal adjunct to bread; and it is equally certain that thousands more would be provided were Mushrooms as plentiful as they might be and cheaper than they now are. For various culinary purposes they are, apart from forming the staple of a repast, also indispensable, but only the favoured few obtain sufficient for their

wants. Mushrooms, then, are nutritious, and their increased cultivation is desirable. It must now be shown that they can be grown in nearly every village and in the suburbs of all cities and towns.

MEANS FOR GROWING MUSHROOMS.

Vast numbers of persons who have the means for growing Mushrooms never attempt their culture, presumably because of the supposed necessity of costly structures and of the existence of some mystery pertaining to the culture of the crop. Costly structures are not necessary for the growth of Mushrooms on either a large or small scale, nor is there any profound mystery attaching to their culture. On the contrary, elaborately built and too highly heated structures have in not a few cases led to failure, while the extraordinary care that has been taken in preparing the beds for this very simple but supposedly mysterious crop has had the certain effect of defeating the object of the cultivator. So far from expensive houses being requisite for Mushroom culture, neither houses, nor sheds, nor cellars, nor lofts, nor caves are indispensable. That Mushrooms are grown in houses and other enclosures above and below ground is true, and most valuable good Mushroom houses are, even essential, in the gardens of the affluent. Where a regular and unbroken supply—a given quantity—has to be provided daily an increase of temperature is occasionally requisite, and forcing to a greater or less extent has to be resorted to. Under those circumstances good Mushroom houses are important adjuncts of gardens, and the more so since they can be, and are, employed for advancing other crops, such as Seakale, Rhubarb, and blanching salads. Without, then, saying anything against Mushroom houses, but, on the contrary, admitting their usefulness, it must still be asserted in the most firm and unequivocal manner that Mushrooms in abundance can be grown from September to June, both months included, without the aid of any building whatever, and the best proof of the accuracy of this assertion is the fact that a far greater quantity are grown on beds in the open air during the period named than are produced in all the houses, sheds, and cellars in Britain. At a moderate estimate 2 tons of English-grown Mushrooms are sold in Covent Garden weekly, gathered from beds made in the open air in the neighbourhood of London, and a considerable quantity also comes from the caves in France.

CULTURE IN THE OPEN AIR.

As an example of the open-air system of Mushroom culture the routine of what may be termed a Mushroom farm in the western district of the metropolis may be adduced. Mr. J. F. Barter's reputation as a manufacturer of Mushroom spawn has long been established, but it was not so widely known until recently, by his exhibitions at South Kensington, that he is equally successful as a grower of Mushrooms for the million. The details of his method of culture, therefore, cannot fail being instructive, and the results he has achieved ought to encourage others who have better means for carrying out the practice than he has to engage in the same work and persevere until they succeed. They will then prove for themselves the truth of the statement that "no vegetable nor fruit crop will give equal returns to the cultivator off a given plot of ground;" and they will at the same time provide the inhabitants

of populous districts with what they certainly do not now possess—an adequate supply of this much-coveted and important esculent. It is self-evident, too, that Mushrooms can be grown in nearly every village and in the suburbs of almost all cities and towns, for the crude materials are there—horses and soil—and only intelligent labour is requisite to turn them to profitable account. As mere statements, however, relative to the remunerative character of Mushroom culture cannot be expected to convince the public, facts must be adduced, and figures founded on those facts, the accuracy of which anyone may test for himself. Then, if the results astonish him and he cannot accept the grounds on which the figures are based, only one alternative can be suggested—namely, that he do what the writer has done—seek the privilege of seeing the Mushrooms gathered and weighed, and form his own conclusions on the subject.—J. WRIGHT.

THE COMMISSIONERS FOR THE EXHIBITION OF 1851 v. THE ROYAL HORTICULTURAL SOCIETY AND PERCIVAL DE CASTRO AS A REPRESENTATIVE OF THE DEBENTURE HOLDERS.

ON Wednesday morning, March 22nd, the Court of Appeal, composed of the Master of the Rolls and Lords Justices Cotton and Lindley, reversed the judgment of Mr. Justice Fry of the 15th June last year, dismissing this action with costs. Their Lordships differed from Mr. Justice Fry on the construction of the agreement under which the Royal Horticultural Society hold the South Kensington Gardens from the plaintiffs, as to the powers and duty of the Expenses Committee thereby constituted for the purpose of regulating the expenditure of the Society, and held that the Commissioners had sufficiently proved their case as against the Society; that the relation between these defendants and the plaintiffs was that of tenant and landlord, and not that of partners; that the debenture holders were bound by the agreement above mentioned, and had no equitable rights against the plaintiffs which would enable them to defeat their claim; and that the plaintiffs were entitled to recover possession of the South Kensington Gardens from the Society, and their costs as against both defendants. Possession of the Gardens was ordered to be given to the plaintiffs within four months.

As was pointed out by the Lords Justices Cotton and Lindley, the result of the decision to the debenture holders is, that they absolutely lose their money without remedy against anyone.

The fate of the Gardens is obviously now in the hands of the Commissioners, and it is to be hoped that they may see their way to such fresh arrangements with the Society as may insure the proper maintenance of, at all events, the greater part of the Gardens for the use and enjoyment of the Fellows of the Society and of the public.

The following Counsel appeared. For the plaintiffs—the Solicitor-General (Sir Farrer Herschel), Mr. Crossley, Q.C., and Mr. E. Beaumont. For the Royal Horticultural Society—Mr. Fischer, Q.C., and Mr. William Haughton. For Mr. De Castro and debenture holders—Mr. Cookson, Q.C., and Mr. D. De Castro.

NOTES ON THE QUALITY OF VINE BORDERS.

It is merely a truism to say that the Grape Vine has for many years absorbed a greater amount of the time and means at the command of the gardener than has any other cultivated plant. Care and labour have been bestowed on Vines to such an extent that in some cases the result is to the detriment of all the other departments of the garden. Plant-growing in such cases is of the most ordinary description. The flower gardening is either dull or glaring, and vegetable-growing most likely beneath the notice of the chief. True, it is not always so, as we have gardeners who are known as widely for their skill in other departments as in Grape culture; but in all these cases the vineries occupy the first place in the gardener's attention, though others are not neglected. It is very noticeable that fewer specialists are to be found amongst

the rising young gardeners than generally high-class gardeners skilled in all departments. In the average garden of to-day you will find its young superintendent striving, and not unsuccessfully, to improve the various departments of the garden to a generally high standard; good Grapes and other fruits are grown, plants and flowers are comparatively without limit, decorative gardening duly attended to, the vegetable garden well cropped, and the flower garden attractively laid out. Of course the appliances that the gardener of to-day has to work with are in his favour, but the greatest help he has is in the simplification of the cultural treatment of all plants under his care, and the tendency grows year by year to manage things in a more simple manner.

Returning to the subject of Vine-growing, I may notice that the treatment of that fruit has been very much simplified indeed, with the result that a greater percentage of high-class fruit is grown than at any time previously. Still, I imagine an even simpler and cheaper system of obtaining good Grapes should be pointed out. This cannot be done by saving in the vineries: indeed I would advocate laying out a larger amount of capital in the first instance than is very generally the case. Mostly the structures are not large enough for the profitable extension of the Vines, and the heating arrangements are in the majority of cases deficient even for the profitable heating of small houses. A saving effected in these I therefore consider as entailing an after loss.

As to the important matter of border-making, I have nothing to say against a thorough system of drainage where required, nor of concreting the bottom of the borders where necessary. These I am particular about. I am also particular to have a material which the roots of the Vines would not readily pass through placed between the soil and the drainage. Such a material may be found in hard-rammed lime rubbish laid on the drainage a couple of inches thick. But as regards the border itself, I find cause for stating that there is room for simplification and economy. I will illustrate my meaning from cases which have occurred in this neighbourhood. In one instance the soil has been wheeled out and the borders remade three times in twenty years; in another case borders made five years ago are condemned; in another borders made three and four years ago are already failing to give satisfaction; and lastly, borders made less than twenty years are destitute of any roots excepting the leading underground stems. Not only is there the expense of removing soil and other work to be included in some of these cases, but there is also the loss in weight of crop, which by no amount of ingenuity can be made a full one the first three years after border-making and planting young Vines.

In each of these cases the borders had been made intelligently and well by good Grape-growers; the best fibrous peat at command had been secured—in two cases carted several miles; and the treatment given what no one would hesitate to call correct. What I consider the cause of failure is this: None of the turf was suitable for fruit-growing. In two of the cases deficiency of colour in the Grapes showed that one of the main constituents of Grape food was altogether absent from the soil. In every case the ordinary soil from the several kitchen gardens would have been greatly preferable to these borders of turf. There would not have been such large bunches; but in this border, though not by any means so good as turf of the right sort if it could have been procured, the Vines would under intelligent management have produced good Grapes for many years at a much less expense.

It may be said that advice like the above is of a retrograde tendency, but it is not so. The number of gardeners who are situated on good fruit-growing soils are few in comparison with those who have a soil of a different character to contend with. Why, then, should those who can only procure turf which after a few years leaves the Vines in a poor condition, go to the expense of employing such material when they have soil on the spot which years of cultivation have brought to a far higher state of fertility? I am surrounded by about a thousand acres of park, and out of that thousand acres there is only a strip of "brae face" I would use in preference to the soil of our kitchen garden. Now is the time when the construction of Vine borders is being considered, and this matter deserves a thought.—A NOR'-EASTER.

SOWING ONION SEED.

OWING to the variation of the soil and climate it is impossible for the same treatment to answer in all parts for the cultivation of the Onion, but it is one of the best vegetables for winter use, and if the crop fails it proves to be a great loss; therefore a few remarks upon the subject may be useful, premising that the best position for the beds is one that is fully exposed to the sun during the greater part of the day.

Autumn is the best time for preparing the ground for the reception of the seeds in spring. A good dressing of lime should be mixed with the soil, for, as well as destroying the numerous vermin, it keeps the ground open. Manure from the fowl yard is one of the best for Onions. It is very easy to make firm beds on heavy soil, but not so easy to do so on light land.

Heavy soil is not always the best to grow Onions in, as good crops are often obtained from light land. When preparing the beds for sowing care should be taken that they are rendered firm; after that the surface should be well raked and then firmed again, sowing the seed and once more making the land firm. The seeds are often destroyed before germination, but to prevent that it is a good plan to steep the seeds in a liquid first, paraffin oil being very suitable, for no insect will touch them after that, and they seldom fail to germinate. Sowing in drills is a much better way than sowing broadcast, as the young plants may be easily thinned and transplanted at regular distances where needed, and the ground can be more readily kept clean. For good keeping varieties Deptford, Strasburg, and Williams's Magnum Bonum may be sown, Danver's Yellow and Brown Globe for early use, and Silver-skinned for pickling.—G. G.

SPRING FLOWERS.

OMPHALODES VERNA in our wild garden is a mass of its lovely blue flowers. It is early this season, but it has been a very mild winter. This plant ought to have a place in all gardens, and it needs only to be left alone when once established where it can have light and air. It soon covers large spaces, and partial shade is no detriment to its well doing. Another charming plant is the Spring Snowflake (*Leucojum vernalis*), now beautiful and fragrant. *Nordmannia cordifolia* is another of those early-flowering plants that should have a place in all gardens and in open spaces in the shrubbery. It is now in great beauty in sheltered positions. The flowers commence expanding as soon as the spike appears above the ground. It is very beautiful before the leaves are fully developed, after that it becomes coarse and has the appearance of a *Symphytum*. When once established it increases rapidly. A native plant seldom seen is the Spring Figwort (*Scrophularia vernalis*). At this time it is very interesting in the wild garden. *Scilla bifolia* and *S. bifolia alba* are lovely in contrast in beds and borders. They increase rapidly, and deserve more attention than they are at present receiving. Where it is desired to increase them it is good practice to do it after they have matured their growth.—VERNA.

ROSE CUTTINGS FAILING.

WILL some of the Rose-growing readers of the *Journal of Horticulture* let us know how Rose cuttings inserted last autumn have succeeded with them this winter? I inserted a batch of cuttings towards the end of September last in a cold pit facing south, with a good dressing of leaf soil and river sand well worked with the soil. Strong cuttings 9 inches to a foot long were employed and inserted 6 inches in the ground and trodden firmly in. In November I placed some spare lights over them to throw off any excess of moisture, having previously spread sand an inch deep over the whole bed to keep them moist without watering. I began to congratulate myself on my success, as they all started vigorously, but now they are nearly all dead. There has always been a good circulation of air in the bed.

I inserted another batch about the middle of October. They did not start into growth for a long time after the others, but they now seem to be dying in the same way. Another lot was inserted near a north wall without any protection. They are looking very well at present, but I expect to lose them similarly.

A few days ago I visited a friend who makes Rose culture a hobby. He had inserted a batch of two or three thousand early in September in a south border, and they seemed as though every cutting had struck, but now they have nearly all died like mine. He thought if they had been covered with glass it would have saved them. Perhaps mine were encouraged to grow too early by being covered, although not kept close. I think the remarkably mild winter has something to do with it, and should like to have opinions respecting it.—W. M.

PROTECTING EARLY POTATOES.—This morning we had 2° of frost here rather unexpectedly, owing to a change of the wind to the north-west and a clear sky. My early Potatoes I knew were above ground, especially "Eight Weeks," Beauty of Hebron, Cleopatra, Ashleaf, and Veitch's Ashleaf. The sun promised at 6 A.M. to rise brilliantly, and I knew, from old experience, the early rays would intensify the mischief the frost might do. So I procured some short stable manure

and hastily mulched or covered all the more forward Potato tops before these rays affected them. This had the desired effect, or nearly so, for when I examined them in the evening they seemed little the worse, though those I could not attend to have been blackened. The point deserves attention.—W. J. M.

TWO HYBRID DENDROBES.

SEVERAL very pretty additions to this genus have been made in recent years by the hybridiser's skill, and by the careful crossing of the most attractive species good results are being continually obtained. The three well-known beautiful species, *D. nobile*, *D. aureum*, and *D. japonicum*, have produced three of the best hybrids in the genus—one *D. Ainsworthi*, now a general favourite, and the new forms *D. Leechianum* and *D. endocharis*, the latter two being described in the following notes.

DENDROBIUM LEECHIANUM.—The accompanying woodcut (fig. 45) represents a flower of an extremely beautiful hybrid raised by Mr. Swan, gardener at Oakley, Fallowfield, Manchester, and named in honour of his employer, W. Leech, Esq. It resembles *D. Ainsworthi*, but is much larger, the sepals and petals being tinged with bright purplish crimson, like some fine varieties of *D. nobile*. The lip is large, open, and marked with very rich crimson in the throat, the tip being also tinged with a similar colour but somewhat lighter. The petals are broad with a wavy margin, and the whole flower has an appearance of great substance. A great additional recommendation is the sweet fragrance it possesses, like *D. aureum*. The plant flowers very profusely at this time of year, and lasts for a considerable time in beauty. Mr. Swan writes as follows concerning the origin and qualities of the hybrid—"I flowered several of the plants last year during January and February, and then considered them sufficiently distinct to deserve a name. I, however, thought it well to wait another season; this we have done, and now some of the first have flowered again, and others have this season bloomed for the first time. I find it a free grower and an abundant bloomer, and one of its chief recommendations will be that it may be hastened into flower by Christmas, and by keeping it quiet and cool it may be retarded till March and April, or probably even later. The parents were *D. nobile* and *D. aureum*. *D. nobile* was fertilised in January, 1875, with pollen taken from a strong plant of *D. aureum*; in fact this was one of the strongest pieces I have seen, with growths 2 feet long covered with bloom. The flower of *D. nobile* soon withered but did not fall, the seed pod quickly formed, and the seed was ripe, and sown in June of the same year on the top of a basket containing *Dendrobium crassinode*. The seedlings were first observed in February, 1876. Being so small I did not disturb them for some time; however, when they had pseudo-bulbs about three-quarters of an inch long I pricked them out into two pots and hung them up in the East India house. They continued to grow well, so that by the spring of 1880 I placed many of them in baskets 2 inches square. Since then they have grown very freely, some last summer making pseudo-bulbs a foot long and proportionately stout. I am sure as they increase in size every season it will prove to be even finer than at present, as many have flowered on pseudo-bulbs made nearly two years ago, which in some cases were only from 4 to 6 inches high."

Mr. Swan also sent flowers of a very handsome variety of *D. nobile*, the seed parent of the above, the flowers being very large and richly coloured. For comparison also he enclosed blooms of *D. nobile intermedium*; *D. nobile coerulescens*, a richly coloured form; *D. crassinode album*, a rare variety; and *D. Ainsworthi*, all good, but not equal in beauty to the hybrid.

DENDROBIUM ENDOCHARIS.—Though it has now been before the public for several years this is comparatively new and by no means so well known as it deserves to be. As in the case of *D. Leechianum*, *D. aureum* was the pollen parent, *D. japonicum* being the seed parent; it, however, more nearly resembles the former in general characters. It was raised by Mr. Seden in Messrs. J. Veitch & Sons' Chelsea Nursery about ten years since, and has been several times exhibited and certificated at metropolitan shows. The flowers are white with a slight yellowish

tinge, and are produced very freely in clusters from the joints of the pseudo-bulbs. They are extremely fragrant, strongly suggestive of Violets, and one or two plants in a house produce an agreeable perfume. It flowers profusely during autumn and winter, and lasts a very long time in bloom. Pots or baskets are well adapted for it, and plants seem to thrive particularly well in the small shallow pans employed in the Chelsea Nursery. The woodcut (fig. 47, page 239), supplied by Messrs. Veitch & Sons, portrays the character of the plant very accurately.—L. C.

LA GROSSE SUCRÉE STRAWBERRY.

ONE of your correspondents at page 216 of your last issue, remarks that at Woolton Hall La Grosse Sucrée Strawberry, started at the same time and under the same conditions as Vicomtesse de Thury, was fully ten days later. My experience of the two varieties is quite the reverse. I consider La Grosse Sucrée the best Strawberry for early forcing that I am acquainted with. We have been gathering from that variety since the middle of February. I forward you a few fruits which are fair samples of a good batch we have in bearing at the present time. Vicomtesse Hericart de Thury under the same conditions has plenty of fruit, but small, and is quite ten days later than La Grosse Sucrée.



Fig. 45.—*Dendrobium Leechianum*.

Has Mr. Faulkner the latter variety true? It is a very distinct Strawberry, carrying heavy crops of large and well-coloured fruit, and will endure more forcing than many varieties. The batch that is now ripe was started on December 5th. Although being so satisfactory for forcing, it makes but little growth when planted out, possibly owing to our soil being cold and heavy.—G. SUMMERS, Sandbeck Park.

[The Strawberries received are very fine, rich in colour, and of good flavour. This is undoubtedly an excellent variety for forcing.]

THE GLASTONBURY THORN is a variety of the *Crataegus Oxyacantha*, or Whitethorn. This variety is remarkable, as alleged, for flowering on Christmas day, and as some say—in the county of Somerset—Old Christmas day. There are a number of curious legends connected with the appearance of this Thorn, the principal of which is that it was derived from the walking-stick of Joseph of Arimathea, who is said to have planted his staff on the site of the old abbey at Glastonbury. Now as I have a tree said to have been derived from this Thorn it may be a matter of interest to note that in a period of eighteen years this Thorn has flowered three times in winter, and that this year I had the pleasure of examining some fine flowering specimens of the plant on Christmas day, and again on Old Christmas day were gathered some fresh flowers, while that of the earlier date was well set in fruit. The truth is, that this tree in my shrubbery usually flowers and fruits twice in each year, but it is very irregular as to date.

Indeed, it may be concluded that the Whitethorn is subject to considerable variations. I have gathered samples from a hedge at Alfrick in full leaf on Christmas day, and I have seen that in rows of Thorns some one or two will be in early flower when the rest have remained weeks behind.—J. BUCKMAN (in *Science Gossip*).



AFTER a season of almost unexampled mildness and several brilliant summer-like days, the first day of the spring quarter, Tuesday the 21st inst., brought a SUDDEN CHANGE IN THE WEATHER. In London the wind was piercingly cold, and at night in some localities snow fell to the depth of an inch, but vanished before the next morning. We have received several letters from various districts just on the eve of going to press which denote that frost and snow are generally prevalent, and fears are expressed for the safety of the fruit blossom. This, however, probably owing to the marked absence of showers, is not so early as might have been expected after the unusually warm weather that has been experienced in the south, early-flowering Plums, such as Jefferson's and the Diamond, being the only trees in full flower in the open.

— ON Tuesday next, the 28th inst., the ROYAL HORTICULTURAL SOCIETY'S FIRST PROMENADE SHOW of the year will be held at Kensington, and owing to the remarkably fine weather we have experienced during the past week plants have made such progress that an extensive and beautiful display is confidently expected. On this occasion the special prizes offered for Hyacinths, Tulips, and Amaryllises will be competed for. Prizes of £4, £2, and £1 are offered for nine pots of Hyacinths, single spikes, distinct varieties, and the same number of Tulips, not less than three varieties. The Amaryllis prizes are for the best seedling; for the best six plants, three dark and three light varieties; and for the best variety selected from amongst the latter. Following the above—namely on Wednesday, the 29th inst., the Royal Botanic Society's first spring show of the year will be held in the conservatory and corridor, Regent's Park. The usual liberal provision is made for bulbs, which will undoubtedly be staged in considerable numbers. Stove and greenhouse plants, Azaleas, Primulas, Roses, Deutzias, Cyclamens, and hardy plants, all have classes devoted to them, the prizes ranging from £3 to 15s.

— IN some of the London parks this season the SPRING-FLOWERING PLANTS placed in clumps in the grass under trees and near shrubbery borders have been very pretty. Crocuses have been particularly gay, and in Hyde Park they have been planted in large numbers in this informal manner. Snowdrops and Daffodils have been similarly employed with excellent effect, and Tulips are now advancing. This kind of "wild gardening," as it is rather strangely termed, is much admired, and is unquestionably more pleasing than formal beds, especially for plants which are soon past their best.

— MISS M. DAVENPORT, Camp Hill, Macr, Newcastle-under-Lyme, Staffordshire, states she will be glad to receive orders for the small hampers and baskets (referred to by our correspondent "D.") for sending flowers by post, 1s. each, made by a blind man in her parish. This is clearly an advertisement, which, under the circumstances, we readily insert gratuitously; but further announcements of articles for sale with prices specified can only appear in our advertising columns.

— A CORRESPONDENT recommends the use of TAN FOR HOT-BEDS. He habitually mixes it freely with manure, then turning

the heap is seldom necessary, and the bark makes the heat steady, while it lasts much longer than in a bed made wholly of manure. For such purposes it is found even better than leaves. Failing either he finds that a portion of old manure mixed with the new makes repeated turnings unnecessary, and the results all that could be wished.

— MR. R. P. BROTHERSTON sends us flowers of the true JACKANAPES POLYANTHUS, which has a large foliaceous calyx green, white, and crimson in colour, the corolla rising a little above it, and of a rich deep maroon hue. Though so peculiarly varied it is handsome, the rich tints both of corolla and calyx being very striking. It is now rarely seen in gardens.

— MR. G. W. CUMMINS writes as follows respecting COPROSMA BAUERIANA VARIEGATA and ABUTILON VEXILLARIUM VARIEGATUM—"In the gardens of C. C. Sibthorp, Esq., at Sudbrooke Holme, I have lately seen some fine specimens of the above, grown by Mr. Gray, the former 7 feet high by 3½ feet, the latter 6 feet high by 2½ feet in diameter, grown in pyramidal form. These are fine ornamental plants for the greenhouse or conservatory, especially when grown to the size indicated. At Canwick Hall, another seat belonging to the same gentleman, Anthurium Schertzerianum, Statice Holfordi, and S. profusa are grown remarkably well. Of the former Mr. Harris possesses a large and free-flowering variety. They are continually increased by division. The Statice are grown by the score, and require but little attention except keeping them clean and free from thrips."

— THE same correspondent observes that "Arthur Garfit Esq., who resides at Scothern, a few miles from Lincoln, has some interesting plants, many of which were sent to him by Mr. C. Warner from Trinidad about seven years ago, including Orchids, Ferns, among which the beautiful ASPARAGUS SARMENTOSUS is noteworthy. It is very useful as a pillar plant in the stove or Fern house, where the different hues may be seen to advantage, young growth having almost a golden colour, while the older foliage is dark green. It is also useful for cutting as a substitute for Ferns with cut flowers for the vase or bouquets."

— THERE is now abundance of HARDY PLANTS IN FLOWER AT MR. T. S. WARE'S NURSERY, TOTTENHAM, the progress made within the last week being very surprising. Blue, white, and red Hepaticas render some portions of the nursery sheets of flowers; and the beautiful Narcissi, of which so many handsome varieties are grown, are fast advancing, several of the earlier forms being extremely attractive. The dwarf bright yellow N. nanus minor, scarcely exceeding 6 inches in height, is one of the best of the small early forms. Erythroniums are numerous, E. Dens-Canis purpureum and album being excellent companions, the large white flowers of the latter affording a pleasing contrast with the rosy crimson blooms of the former. The bright blue Chionodoxa Luciliae with several Scillas, especially S. bifolia, both the blue and white forms, are flowering abundantly in and near the rockery. Puschkinia libanotica is producing its short racemes of white Squill-like flowers abundantly, the brilliant Anemone fulgens forming glowing masses of colour. Primula rosea on the rockery, where it has been slightly protected, has several trusses of its rich rose flowers, the colour of which is especially fine before they have fully expanded. Primula cashmiriana is also fine now with dense umbels of purplish lilac flowers. Anemone ranunculoides is a neat and distinct species of very dwarf habit, having finely cut leaves, and it bears its bright yellow. Buttercup-like flowers in profusion. Many other plants of considerable interest and beauty are also now flowering or fast advancing.

— THE annual WHITSUNTIDE EXHIBITION AT MANCHESTER will be held at the Royal Botanical and Horticultural Society's Gardens, Old Trafford, from May the 26th to June 2nd, when

the usual liberal and numerous prizes will be offered. Seventy-seven classes are provided, the majority being for plants and cut flowers, and nearly equally divided between nurserymen and amateurs. Very liberal provision is made for the exhibition of Orchids, the prizes amounting to a total of £136 in seven classes, the amateurs' class for fifteen Orchids in flower and the nurserymen's class for sixteen in flower being the chief, the prizes ranging from £16 to £6. Stove and greenhouse plants, fine-foliage plants, Azaleas, Roses, Pelargoniums, Ferns, and herbaceous plants, all have several classes devoted to them, and one of the customary fine exhibitions may be confidently expected.

— A SUSSEX correspondent writes—"Owing to this exceptionally mild season HARDY FLOWERING SHRUBS are in bloom fully three weeks earlier than they were last year; *Magnolia conspicua*, for example, is now a mass of bloom. *Berberis Darwinii* is also in full bloom, likewise *Andromeda floribunda*, *Lonicera fragrantissima*, &c. Hardy fruits, too, are coming rapidly into bloom."

— THE usual monthly dinner of the HORTICULTURAL CLUB took place on the 16th inst. at their room in Henrietta Street. There was a good attendance, and the following gentlemen were elected members—the Rev. F. H. Gall, Messrs. Cuthell, Buston, Balderson, E. Hawtry, and Stottenhoff. The arrangements were considered very satisfactory.

— IN the stove at Kew a remarkably pretty NEW SPECIES OF *IMPATIENS* is now flowering. The plant is of dwarf compact habit, with small lanceolate leaves, and rosy scarlet flowers about 2 inches in diameter, and produced very freely on the upper portion of the stems. The tint is extremely brilliant, and together with the neat habit renders the plant highly ornamental. It is said to be a native of Zanzibar, and is related to *Impatiens Walkeri*. It is well worthy the attention of horticulturists, and would, no doubt, soon become a general favourite if in the hands of a nurseryman.

— MR. W. H. SADLER writes—"I am requested by the Committee of the HORSHAM ROSE ASSOCIATION to give notice that our Rose Show is fixed for the 29th June." We also learn that the Borough of Hackney Chrysanthemum Exhibition at the Royal Aquarium, Westminster, will be held on November 15th and 16th. On page 217 in our notice of forthcoming exhibitions Plymouth was misprinted for Weymouth, which Show takes place on July 26th, the Secretary being Mr. W. Mordaunt Thiselton.

— THE schedule of the FARNINGHAM ROSE AND HORTICULTURAL SOCIETY announces that the annual exhibition will be held on June 29th, when prizes will be offered in sixty-one classes, the principal being for Roses, but miscellaneous plants, fruits and vegetables are provided for, prizes in the cottagers' section being also offered for honey. We learn from the financial statement of the past season that the Society continues in a satisfactory position, for though at the last exhibition the total value of the prizes was considerably increased, the returns show a balance of £25 to the credit of the Society.

— MR. B. S. WILLIAMS has now a good display of ORCHIDS AT UPPER HOLLOWAY. Many are in flower, and many more are fast advancing. One of the most noteworthy is a handsome specimen of *Dendrobium Wardianum* in a basket suspended near the door of a warm house. It is a remarkably fine variety, with flowers 4 to 5 inches in diameter, the centre of the lip and the tips of the petals being very richly coloured. The superb *Dalkeith* variety of *Vanda tricolor* is also flowering well, having a handsome spike of its brightly coloured flowers. The fragrant *Dendrochilum glumaceum* is represented by a specimen with nearly three dozen spikes of flowers, and although it has recently

had a journey to the Manchester Spring Show, it does not appear to have suffered in the slightest degree. *Dendrobies* are abundant, such favourites as *D. Pierardi*, *D. nobile*, *D. densiflorum*, and *D. crepidatum* flowering profusely, some extremely fine varieties being included in the collection. Perhaps, however, one of the most remarkable is *D. teretifolium* with cylindrical leaves and small white flowers slightly blotched with claret, which are borne on very fine hair-like peduncles in a much-branched panicle. It has a peculiar effect, and the inflorescence has been not inaptly compared to a cloud of smoke. An early batch of *Odontoglossum vexillarium* is in flower, with fine forms of *O. crispum* and *O. Rossii*; *Cattleya Trianae*, *C. maxima*, *Oncidiums*, and many others being equally beautiful. A handsome hybrid *Zygopetalum*, *Z. Clayi*, is in remarkably fine condition, and the rich orange-coloured *Laelia harpophylla* is similarly noteworthy.

— AN amateur writes to us as follows—"Thanks for your advice. I have observed that nothing is read from week to week with such interest as your ANSWERS TO CORRESPONDENTS. If those who are in difficulties could keep up a narrative of their troubles and triumphs, upon which you could comment and correct, I believe it would prove of great service to your amateur readers." We have only to add that a record of the "triumphs" of our readers and how they have been achieved will be very welcome because useful, and their "troubles" shall continue to have our best attention.

— A REMARKABLE article, entitled "NO VEGETABLES," has been cut from the *Pall Mall Gazette* and sent to us for perusal. We are glad to read from time to time special articles in the general press on matters pertaining to gardening. Most of these are at least entertaining, and a few denote the acquisition of technical knowledge of the subject in hand by the writers. But now and then, notwithstanding their wide knowledge, the editors of our leading journals are induced to publish curious productions; but it is only fair to the writer of the one in question to observe that he seems to have been impressed by an American whom he "met in a restaurant." As there are a few sentences in this extraordinary effort that ought not to be lost to the gardening world, we hope to be able to find space for them in a future issue, with such comments as the somewhat novel paragraphs suggest.

— THE first volume of Messrs. Cassell, Petter & Galpin's re-issue of PAXTON'S FLOWER GARDEN, revised by Mr. T. Baines, is now completed, and as regards printing, paper, and binding it is all that could be desired. Many of the coloured plates are also admirably executed, particularly the *Chionodoxa Lucilæ*, which we consider one of the best in the work; but some show a deficiency in this respect, which is regrettable, as the book is otherwise highly commendable. Thirty-six plates are given, the majority the same as those which appeared in the original edition, but several good additions have been made. In the gleanings and original memoranda much information is given concerning new and recently introduced plants; and we observe that the capital initial letters for specific names, the use of which, as we pointed out at the time, disfigured the first few parts, have been discontinued—a considerable improvement. It forms a handsome presentation volume.

— PROMENADERS on that grand promenade, the Thames Embankment, have lately had a floral treat, and have greatly admired the BEDS OF CROCUSES IN THE INNER TEMPLE GARDENS. On the south terrace of the gardens about forty beds of these flowers have under the brilliant sun of this and last week been extremely attractive. Ten thousand bulbs were planted, about two-thirds being of the large yellow *Crocus*, the others comprising *Princess of Prussia*, pale blue, and *Sir Walter Scott*, silvery white with purple stripes. The flowers are remarkably fine, and from five to

ten are produced from each bulb, of the yellow variety especially. A number of Daffodils have been planted in the grass, and these, too, have a cheerful appearance. A great number of trees have lately been planted by Mr. Newton, such as the Abele Poplar, the Mountain Ash, Paul's Scarlet Thorn, Laburnums, and various others that usually succeed well in towns; these trees, which are very fine, having been supplied by Messrs. W. Paul, Turner, and Lane. It is gratifying to notice that a disposition exists on the part of the directorate of this garden to render it additionally attractive, and to permit the public to share in the enjoyment that such a large well-kept open space affords almost in the centre of the metropolis.

— A CORRESPONDENT, referring to the inquiry concerning the CULTURE OF ORANGES IN THE TROPICS, which was answered on page 205, sends the following extract from the "Leisure Hour"—"The inhabitants of St. Michael live to a very considerable extent on Oranges, which are the principal product of their island. Boid mentions a curious display of epicurism among the upper classes there. He says they eat only that side of the Orange which has been most exposed to sun, and which in fresh fruit is quite as easily distinguishable as in our Apple. The trees here are said to be wonderfully prolific. They are propagated from layers bent down and covered with earth until they form a few rootlets, when they are separated from the parent tree and set in small plantations. So delicate is the Orange tree, however, that though the temperature of St. Michael never ranges farther than from about 50° to 75° Fahr., these offsets have to be planted in little hollows some 3 feet deep and surrounded by Firs and shrubs, and a pile of loose pieces of rock with which the soil abounds. Thus protected they soon become stout young trees, and are removed to the positions they are destined to occupy permanently. In this genial climate it is said they attain a good fruiting condition in seven or eight years, whereas in most European Orange gardens from sixteen to twenty years are required for young trees to attain the same stage. And not only do they bear very early but the crops are sometimes enormous. It is said that a single tree has been known to bear 26,000 Oranges when at its prime. This however, if a fact is quite exceptional, though it has been asserted on good authority that from 12,000 to 16,000 Oranges are not an uncommon crop for a tree in St. Michaels. In Spain or Portugal 3,000 to 4,000 are thought to be very satisfactory crops. The St. Michael Oranges come into market packed like the Spanish fruit, in chests and half chests containing 1000 and 500 Oranges respectively, and realise from 30s. to 50s. per chest."

WASPS, AND HOW TO GET RID OF THEM.

THE time has now arrived when our old enemy will be making an appearance; indeed, only the other day our estate carpenter caught a queen wasp in his workshop. I should like to see their prevention taken in hand more vigorously than at present by gardeners and their employers. I took the hint from that good gardener, Mr. Taylor of Longleat, of paying for queen wasps and their nests as the best mode of saving the fruit. Towards the middle of March we commence paying 2d. each for all queen wasps caught in the gardens or within a mile of the mansion up to about haymaking time, and then 4d. per nest for all that are brought to me entire till October. I have not my book at hand, or I could give the exact amount I paid for queen wasps and their nests last year; but this I know, that we had hardly any wasps, to the great advantage of our fruit crops. Last year was the first year we tried this plan, and I am so far satisfied with the result that we shall continue the practice this season.—H. S. JAMES, *Farleigh Castle*.

PLANTING POTATO SETS BENEATH OR ON MANURE?—I am almost ready to plant the general farm crop of Potatoes, and recently found to my surprise that two intelligent practical men here, one a successful farmer and the other a gardener, held opposite views upon this matter, and both claimed to be successful. I am alluding to drill cultivation, where the manure is applied at the same time as the sets are being

planted. I think there is much to be said on both sides, and would like to hear the views of any correspondent who has both theoretically and practically thought over the matter. One maintains that the feeding roots go down for sustenance, the other that those feeding roots branch out from the stem towards the surface. The point is not mentioned at page 211.—W. J. M., *Clonmel*.

LABELS FOR PLANTS.

WHEN we figured Mr. Wolley Dod's label on page 173 we did so because we thought it good in principle, and in the hope that improvements might follow. An improvement, or at least so we consider it, did follow. This was Mr. Garner's label described last week on page 212. Since Mr. Garner's letter and our reference to his label appeared, we have been requested to supply "further particulars." As we cannot describe the mode of fixing the wire more clearly than our correspondent has done on the page quoted, we have had a front and back view of the label engraved. The method of attaching the wire, which is simple and effectual, will now be clear to all. It will be remembered that Mr. Garner applies a mixture of yellow and white paint to the labels, and after writing on them gives a dressing of spirit varnish, which he states stands the weather well. The colour is very agreeable.

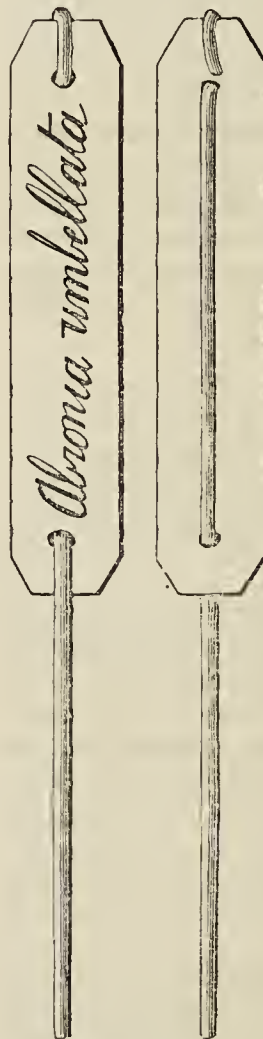


Fig. 46.

FERTILISERS.

I WAS much interested as well as instructed by the admirable article published on page 187 of the issue of the 9th inst. on "Fertilisers and their Use." Your correspondent, "SINGLE-HANDED," writes so well, that if I venture on a few remarks upon the subject I trust he will deal mercifully with me. I can pretend to very little science and still less practice, but Liebig tells us that we must look to the united efforts of the chemists of all countries in order to "arrive at a rational system of horticulture and agriculture," and that these efforts must be aided by enlightened practical men such as "SINGLE-HANDED," and I am en-

couraged to offer such trifling help as I can give to enable him to work out the great problem which he has taken in hand.

"SINGLE-HANDED" advocates the use of potash in abundance with farmyard manure, and in this I have no doubt he is right; but I lately heard from a gentleman who has the best means of knowing what is the practice of the agricultural chemist, that the chemist in returning the fertilisers of a manure does not, unless specially requested to do so, take any notice of the potash that may be present. Indeed, our greatest horticultural chemists of the present day are quite persuaded that the soil naturally contains so much potash that any additional quantity in the shape of artificial manure is quite unnecessary. The analytical chemist, therefore, ignores the important fact, so thoroughly recognised by your correspondent, that unless the food elements are offered to the plant in the form in which the plant can avail itself of them, they might as well not exist for any good that they can then do it. As Liebig amusingly puts it, "They are ready to enter into circulation, like a maiden to dance; but a partner is necessary." The partner they are for the time tied to is unable to move.

In illustrating this point "SINGLE-HANDED" quotes the case of sulphate of potash, which he had observed remained for a long time inactive after application and only became available for subsequent crops; and he says that the reason is, it takes time to convert the sulphate into carbonate, "in which state potash is alone available practically as plant food." Is your correspondent right in this? I have been led to believe that sulphuric acid has a stronger affinity for potash than for ammonia, which "SINGLE-HANDED" believes is the agent for converting the potash into carbonate, by means principally of the carbonate of ammonia escaping from stable-yard manure. I shall be much obliged if your correspondent will consider this point again. It is one of great interest in the manure question. I am aware that sulphate of lime is converted into carbonate of lime by carbonate of ammonia, although

lime has also a stronger affinity for sulphuric acid than ammonia has. But here there are other influences at work. The formation of the insoluble carbonate of lime controls and overcomes the action of affinity, and indeed, if moisture be present in small amount only, the action is in the other direction. The sulphuric acid or sulphate of ammonia deserts the ammonia and takes the lime for its partner, according to the usual order of affinity. From an agricultural point of view this question is full of interest. The action also of the soil itself in promoting the decomposition of chemical substances must be considered fully. This action is more powerful probably than that of affinity.—INQUIRER.

EPIGÆA REPENS.

THE difficulty in growing this lovely little undershrub (the Mayflower) is mostly experienced in inducing it to commence growth when it is received from nurserymen. Three years ago, in the winter, Messrs. Woolson & Co. of New Jersey, sent us, along with *Sarracenia flava*, a good plant of *Epigæa*, and the weather being cold we considered it better to pot and keep it indoors until better weather. Both the Pitcher-plants and the Mayflower were treated in the same way, and made some young growth. When sufficiently inured to outdoor temperature they were planted out, both kinds in peaty soil kept moist by a miniature stream of water. The *Epigæa* had already formed its leaves, so now made only its flowering buds for next year, which always remain conspicuous throughout half the summer previous to next spring's flowering. The Pitcher-plants formed beautifully shaped pitchers, some above 18 inches high that year, but the next two winters being very severe, they, although existing, only seemed to recover sufficiently to brave another winter, and, this being a very mild one, we hope to see better growth.

The Mayflower at the present time has abundance of *Stephanotis*-like flowers in miniature, waxy, and lasting as long. The first flowers, or rather all the flowers, when first open are pure white, gradually changing to a very delicate rose. A delicious perfume is emitted, which I can best compare to that of Orange blossom. This is the prettiest plant we have in our garden at present, and one of the best American undershrubs.—T. D. H.

DOINGS AT BURGHLEY.

ON page 198 reference was made exclusively to the outdoor departments of the gardens at Burghley, but the work under glass is equally good, the useful rather than the ornamental aspects of gardening having primary attention. Fruit-growing preponderates over plant culture; still plants are represented, and not one is to be seen that is not worthy of the space it occupies, either for affording flowers for cutting or for serving some decorative object connected with the establishment. In these notes no attempt will be made to describe in detail the contents of each structure, nor will the length and width of each house be stated; neither is it conceived to be a matter of great moment to observe whether we turn to the left or the right when we leave one range and enter the next, or whether a door opens inwards or outwards. It is true all such particulars are not unfrequently given in descriptions of gardens, but they have never appeared to me of commanding importance, either by their interest, usefulness, or suggestiveness. All such minutiae, therefore, will be omitted, and all that will be said as affording an idea of the extent of the glass is, that 8000 feet of hot-water piping and two of Weeks' tubular boilers are employed for heating, these being used alternately, and answer admirably, "not having," as Mr. Gilbert states, "cost sixpence for repairs for thirteen years." The houses are chiefly lean-to's, and not lofty, supplemented by some useful span-roofed pits.

VINES IN POTS.

Several houses are devoted to Grape culture. The earliest Grapes are produced by Vines in pots, which afford satisfactory evidence of a bountiful crop. Several varieties are grown, the canes being very strong and the pots large, 14 or 15 inches in diameter. Two rows of Vines occupy the house, one row placed near the front reaching half way up the rafters; the other at the back of the pit furnishing the upper portion of the house. Very early forcing is not attempted, the cultivator being alive to the fact that more than twice the weight of Grapes can be had in April and early May with half the trouble that is requisite to have an inferior crop ripe in March. The fine well-shouldered bunches now being produced resemble those ordinarily produced by permanent Vines, and the crop will undoubtedly be heavy. The Vines are grown from cut-backs, by which system stronger canes can, as a rule, be had than by producing them from eyes in one season. The cut-backs, in 6-inch pots, were being shifted, and many of them are now in their fruiting pots, the growths being 4 to 5 feet high, and as strong as the fruit-bearing laterals on permanent Vines. Those who desire to grow Vines in pots and have not

well-heated and light structures for securing very early growth, will find the advantage of growing the Vines on this system; that is, by inserting the eyes late rather than early, and letting the plants remain in 6-inch pots, cutting their canes down to the lowest good eye in winter, and starting the growth during the light days of spring instead of the dark period of winter. This is a hint for amateurs; competent gardeners need no advice on this subject, for they know which system of Vine-raising is best adapted to the means at their command.

VINES FOR TABLE DECORATION.

A few Vines are being raised in pots for table decoration, after the manner of a very fine specimen that was exhibited at South Kensington by Mr. Sage of Ashridge in 1878. A cane is drawn through a 6 or 7-inch pot, round which it is twisted, and the pot filled with rich soil. This pot stands on the soil of the larger pot in which the Vine is growing. The cane is taken upwards to the height required, then turned so as to form a hoop, round which the bunches are produced. By the autumn the smaller pot is crowded with roots, which, when the Grapes are ripe, will afford the necessary support after the cane is severed from the original roots, and one of the most appropriate and beautiful of ornaments is produced for a large dining-table or side-board during the shooting season. "Nothing new about that," some readers may say. The plan is certainly not new, neither is it common. I had Vines similarly grown under my charge nearly thirty years ago; but we may go back further, say about two thousand years, for Cato, who lived 150 years B.C., described particularly the mode of raising Vines by passing up a shoot through a hole made in the bottom of a pot filled with earth. There is thus nothing "new" as regards the system of propagation; but whether the luxurious Roman emperors employed the Vines for the same purpose as they are provided at Burghley there appears no evidence to show. Amongst the Vines in pots Abercainey Seedling is showing fine bunches, and Mr. Gilbert is as firmly impressed as ever with its distinctness and great usefulness as a late Grape.

ESTABLISHED VINES.

Except a house of very old Black Hamburgs now starting, most of the Vines are grown in inside borders, or rather pits, 5 or 6 feet wide and 3 feet deep; the latest Vines, however, in a long range have more root room. The Grapes from these Vines, Lady Downe's and Alicantes, are cut and "bottled," the fruit being fresh and of excellent quality. The rods are pruned, but neither peeled nor painted, the former process being unnatural, and the latter fast becoming obsolete; but habit is so powerful that many good gardeners cannot relinquish the practice of daubing the canes with a dirty pigment. The last Vine I thus dressed was in 1850. Thus I do not speak without experience of managing Vines and keeping them clean on the non-daubing system.

The useful late white Grape Trebbiano is a favourite at Burghley, a house being devoted wholly to it, filled with five Vines. These Vines are grown somewhat on the principle that is now being described by Mr. Taylor; but as yet the extension system is not carried out so fully at Burghley as it is at Longleat, and perhaps never will be, for as at present managed the Vines give complete satisfaction. This is considered by competent judges as being the finest "Trebbiano house" in the country. A house of Muscats merits notice. The Vines are only two years old, but they have been so freely grown as to appear much older, and are undoubtedly in first-class condition, the rods being very strong, short-jointed, firm and clean. Adjoining is another house of Muscats, the Vines having been raised from eyes last February and planted in July. The canes are strong, well matured, and have bold eyes. According to the practice of some cultivators these rods ought to have been cut pretty closely down. Mr. Gilbert, however, fails to see the necessity of such close pruning, and these are left some 10 or 11 feet in length. They are certainly strong enough to bear a few good bunches, and as the older Vines treated in the same manner are in all respects excellent the practice in question is found to succeed well at Burghley. Only sufficient foliage is permitted to form in the summer that can be fully exposed to the sun; in fact the method of culture is precisely that which was advocated by Mr. Iggulden some weeks ago.

PEACHES AND NECTARINES.

A large extent of glass is devoted to these fruits, and it is rare indeed to find trees in better bearing condition. They are excellently trained and furnished to the centre with bearing wood thinly disposed. A great number of shoots are not shortened at all, and none severely. Thinning rather than shortening is the principle of management, and it is a sound principle. Overcrowding of the growths is ruinous to Peach trees, and examples of it are far too common. The varieties chiefly grown at Burghley are Early Alfred, Dr. Hogg, Bellegarde, and Barrington. Nectarines are less numerous, and consist chiefly if not entirely of Elruge and Victoria. A tree of the latter is a model, something to be proud of, and it afforded the first-prize fruit at the great Manchester Exhibition last year. Camellias are trained to the back walls of the houses; these handsome shrubs and Peaches succeeding well together, the shade of the trees on the trellis in summer being exactly suited for the plants on the wall. There are thousands of square yards of bare back walls in Peach houses in this country, and thousands of Camellias waiting to cover them—a hint that may be turned to profitable account.

MARECHAL NIEL ROSE.

In one house the back wall is covered with Cherries, a flat stage in front of the house being filled with divers plants and new dwarf Peas in boxes, Figs covering the back wall of an adjoining structure, with Maréchal Niel Rose on the roof in grand condition. I have seen many remarkable examples of this fine Rose, one of them bearing three thousand blooms, but the Burghley specimen surpasses them all as a type of high culture. It is on the Briar and fortunately worked low, as ought always to be the case when this Rose is worked at all. It is planted in the centre of the house and close to the front, horizontal main branches being trained right and left along the base of the rafters. These horizontal mains are the only permanent portions of this fine tree. At intervals of 5 or 6 feet wires are stretched up the roof, and to these are secured the flowering shoots; and it is to be particularly noted they are annual shoots—that is to say, as soon as the blooms are cut in May or June the growths are cut quite down to the base of the rafters. The roots being in rich soil and generously fed, strong growths start at once, and four or five of these are trained up each wire. They speedily reach the top, and are then shortened. These young growths are fully as thick as an ordinary pencil and many of them much thicker, while the foliage is remarkable for its size, substance, and deep rich green. One of the leaflets casually measured exceeded 6 inches by 5, exclusive of the footstalk. When it is remembered that every bud on wood thus prepared affords at least one flower some idea may be formed of the pendent massive lines of golden blooms that must be produced. The effect cannot but be magnificent and worth a long journey to see. This is the simplest and best of all systems of growing the Maréchal Niel Rose under glass. I have proved its value years ago and seen the plan carried out by others, but never so well as in the example under notice. The wires are placed at the distance stated, so that the Figs on the back wall received the light between the cordons of Roses. The stock of the Maréchal, as is almost invariably the case, has increased much faster than the Briar. This is the cause of the death of many fine plants, or rather trees, when budded high, but worked low the junction can be covered with soil. This is what has been done at Burghley by packing a wall of turves round the stem after a sharp knife had been drawn down the Briar portion, cutting quite through the bark, and it is expected the health and vigour of the specimen will be maintained. The roof under which this Rose is trained is 30 feet long by 18 or 20 deep. Worthy of record as are many doings at Burghley, not one is more worthy than this splendid instance of Rose culture.

Of plants it can only be said generally that all that are useful are grown in their season. The most notable in February was the fine hardy white Primrose Harbinger, for which Mr. Cannell obtained a first-class certificate this year at Kensington. The stock of this new plant was in pots and strikingly effective; it will be equally suitable for beds and borders, and is a valuable addition to hardy spring flowers.

Much more might be written on this admirably managed garden, and the cleanliness of the houses and plants, but want of space forbids. One of the most pleasing matters, however, must not be overlooked—namely, the confidence and good feeling that exists between the chief and his subordinates. His foreman, Mr. Divers, is really a skilled gardener, and the journeymen have won approval by their diligence and attentiveness. It is only when all labour thus willingly and unitedly that every department of a garden can be in the satisfactory state apparent at Burghley, and those who share in the work justly deserve a word of approbation and encouragement.—J. W.

YELLOW ROSES.

It may interest the admirers of the Persian and Austrian Roses, referred to on page 183 of the Journal for March 2nd, to know that in an old work entitled "The Picturesque and Medical Flora of the Antilles" (by Mons. M. G. Decourtely, Paris, 1821), the red and yellow single Rose are illustrated and described as found growing wild in arid and uncultivated spots among the islands of the Caribbean Seas. One specimen is brilliant orange tinted within the petals, considerably larger than the variety we are accustomed to see here. The other the same size is sulphur colour. The botanical description is as follows—Rosier Marons Rouge et Jaune. Synonyme—Rosa americana. Stem spiny; leaves pinnate; leaflets ovate, crenate. Flower red on the inside, yellow externally; ovaries globose. Rosa sylvestris sulphurea.—Ovaries globose; petioles and stem spiny; leaves pinnate; leaflets oval.

As a proof of the earliness of the season I may mention that to-day, March 9th, I observed Reine Marie Henriette, that very early, hardy, and fragrant red Tea Rose, showing buds on a south-west wall.—A. M. B.

FUCHSIA SPLENDENS.—Among the many useful plants that we possess for winter decoration I find none more beautiful than Fuchsia splendens with its scarlet and green flowers. It is of easy culture, being readily increased by cuttings in the spring, which strike freely

in a brisk bottom heat, and from seed sown in gentle heat as soon as it is ripe. A rich light compost with thorough drainage is required, with abundance of water. The plants should be grown on in moderate heat until the size required is obtained. To have compact plants they require careful attention in tying and pinching. I prefer the pyramidal form. When the wood begins to ripen they may be removed to a lower temperature. In early winter they may be placed in gentle heat; they will soon begin growing and blooming. After flowering they may be cut back and started into growth for another season.—NORTH YORK.

NOTES ON VEGETABLES.

BROCCOLIS.—There is no lack of these this season, and the quality is also good. Ours in most instances are small, owing to their being planted very late. We sowed the seed in good time, but both the first and second attempts were defeated by the Turnip fly and Turnip weevil. The former is an old enemy, but the latter was new to me, and proved much the more destructive of the two, and nothing I tried appeared to disagree with it. No seedlings of the Brassica tribe, where sown in the open, could make any progress against it, and strong plants raised under glass were much injured by the little pests. We sowed the remainder of our seed under handlights, and succeeded in rearing sufficient plants for our purpose. This season all the choice early sorts—such as Snow's, Veitch's Autumn, White Cape, Osborn's Winter White, Penzance, and Leamington—are being sown under glass, the first five being now fit to prick out. By these means we insure the germination of every seed, secure a long season's growth, and, weevil or no weevil, this will in future be the practice adopted by me. The first fit for use was the White Cape, this following closely on Veitch's Autumn Giant Cauliflower. The White Cape if sown and planted out early will produce fine early heads. It is far from being a hardy variety, but being dwarf in habit is well adapted for lifting and storing in pits. Veitch's Autumn Broccoli produced a greater per-centage of serviceable heads than it has previously done with me, and it has risen in my estimation accordingly. Snow's, as usual, was very good, but it is not so white as I should like to see it. Early Penzance closely followed it, but it is too tall to be hardy, and will never become a great favourite. The whole of ours were fit to cut at one time; this, however, is no recommendation to us, although it may be to market growers. Osborn's Winter White heads the list of early-spring varieties, and is a great favourite with me on account of its dwarf habit. We did not receive our seed direct from Messrs. Osborn's, and this may account for the mixed character of the breadth, only 50 per cent. of the plants being true. To succeed these we have the invaluable Leamington, next Cooling's Matchless, to be followed by Miller's Late Dwarf and Cattell's Eclipse, or rather Mr. Gilbert's selection of this good old variety. I have not grown Miller's till this season, and I am much pleased with this old and compact variety, as it gives promise of being hardy.

KIDNEY BEANS.—As these are much prized here, and have to be picked at least during ten months in each year, we are naturally concerned about the best varieties to grow. The best for pots, it would almost appear needless to repeat, is Osborn's Forcing. I find it easily grown, early, prolific, and of the best quality. This opinion is generally shared by horticultural writers; but in spite of this, however, we still meet with growers who cling to such miserable little varieties as Newington Wonder, or grow the Canadian Wonder simply because it succeeds in the open. That the latter can be grown to perfection in pots I well know, but it is more often not, and fully developed pods of Osborn's are infinitely preferable to deformed pods of Canadian Wonder. I have not grown Carter's Longsword in pots, but should imagine it suitable for the early spring crops. It is a white-seeded variety, and the seed being of good size I decided at once to grow it in preference to the ordinary running Haricot Bean. It fully answered my expectations, and we secured a heavy crop of well-ripened seeds, which went off well—in fact, too well, as our kitchen server contrived to send in the whole of them before I was aware of it. It is well worth cultivating for ordinary purposes, as it is quick-growing, compact in habit, and remarkably prolific. I received a packet of a pale green-seeded variety, presumably of continental origin, from two quarters, but do not intend to grow it again. It proved very prolific, and the colour and quality of pods was good, but they were much curled, and the plants required staking; being weak were unable to support their weight. Canadian Wonder in the open, for the first time since I have grown both, was surpassed by the Monster Negro Longpod, the latter proving decidedly superior in every respect. The soil in which they were grown was heavier than I have previously tried them on, and this may account for the superior robustness of the Monster Negro.

TOMATOES.—The only novelties I grew of these besides my own

crosses were two American varieties named Livingstone's Perfection and Canada Victor. These were kindly forwarded to me by Mr. Cullingford, and I have also to thank Messrs. Suttons for a packet of the former. Both are smooth and round-fruited, Livingstone's Perfection being the largest, and well adapted for exhibition purposes. They are bright red in colour, and in many respects resemble Hathaway's Excelsior. However, I believe there are better being selected in this country. In point of quality I must recant in favour of the corrugated varieties, these having more seed and less core, the pulpy matter enclosing the seed being the best part of the fruit.—W. IGGULDEN.

A GOOD VERMIN KILLER.

LATELY we have been using the softsoap and paraffin mixture, with satisfactory results, for killing insects on Orchids, *Draeænas*,

&c. While so doing the thought occurred that perhaps it might kill vermin at the roots without injuring the plants. Accordingly, some Cauliflowers in pots were supplied with it, and twenty-four hours after they were turned out of their pots, when the roots appeared quite uninjured, but the worms were already putrid. This fact is worth the attention of those whose Brassicas are attacked in summer with grubs at the root. Last year not less than two-thirds of the Cabbage crop of Scotland was by such means destroyed. If this mixture will save the plants by killing their enemies, the community at large will owe a monument to the inventor of this effectual vermin killer.

The following is our method of preparation—Take a gill—one-third of a pint—of paraffin oil and 4 ozs. of softsoap. Place these in an ordinary pail, and over them pour a kettle of hot water. Stir this till all is dissolved, and then fill the pail with pure water. This is about the strength we use it. This preparation is far



Fig. 47.—*DENDROBIUM ENDOCHARIS*. (See page 233.)

better than paraffin oil alone. Mixed with the soap it dissolves, with pure water only it floats on the top.

We intend trying it on Onion and Carrots this year.—SINGLE-HANDED.

THE PENTSTEMON OF THE FLORIST.

LIKE many others which have been "improved," this constitutes one of the best decorative flowering plants we have. It may be employed in the flower garden planted in lines, in borders, in clumps, in beds, singly amongst lower-growing plants, or used in the arrangement of mixed borders. From the gar-

dener's point of view it is somewhat unfortunate that these are not quite hardy in severe winters, though soil and position have an influence in determining the extent to which they may be termed hardy. For instance, we have a plant of the old variety C. P. Peach, quite a specimen plant in fact, which has passed the ordeal of the extra cold winters preceding the present one. When Pentstemons do pass the winter without injury they make a really grand display in early summer, a display which may be maintained by a judicious removal of the spikes as the flowers fade, mulching the roots of the plants and supplying them with water. When the ground becomes dry, seed-bearing combined with drought will not only stop the production of fresh spikes,

but also, in some cases, it will kill the plants. I think so highly of these old plants for early flowering, that the best of our plants were lifted and potted last autumn, to be replanted again this spring for the production of early flowers. Could the mildness of the winter have been foreseen, the plants might have been left out with safety.

The time for propagation by cuttings is most commonly in autumn, when these do well placed in cold frames or cool houses. They are also successfully propagated in spring, plunging the pots in a mild bottom heat until the cuttings have formed roots. I now prefer the month of August for inserting cuttings. They require to be placed in cold frames in our case, as we grow several hundreds of plants. The cuttings are dibbled into soil in the frames. The sashes are kept close and shaded during sunshine until the cuttings are rooted. By the end of September they are placed singly in 3-inch pots, using for compost a friable loam to which one-third of cow dung is added. We plunge the pots in cold frames for the winter, taking care to have the rims of the pots covered with the plunging material. The sashes are only placed over the plants during frosts, cold winds, or rain. At the middle of February the plants require to be shifted into pots 2 inches larger, and returned to their winter quarters until the time arrives when they may be safely planted out. The middle of April is quite early enough in our locality to place out these plants; later-struck plants and those propagated the same spring may be left with advantage till the beginning of May before planting out.

A stock of plants is easily raised from seed sown in March in a mild hotbed. The seed is small, and must be very thinly covered with soil. Seedlings grow very strongly and flower in autumn, though I prefer to depend on good named sorts, as being the only sure means of securing the best spikes and flowers; yet those who are not so particular as to quality can raise a stock of plants most cheaply from seeds. Pentstemons will not succeed satisfactorily unless the soil in which they are planted is dug deeply and well enriched; their roots ramble widely and deeply, and during dry weather, even in well-prepared soil, they require frequent supplies of water.

Plants propagated early in autumn and afterwards treated as above recommended may be allowed to bear half a dozen spikes. From a decorative point of view these are quite enough to give effect, and from the florists' point of view they are not too many. Staking is necessary to secure the spikes from being broken, but I only employ one stout stake to each plant, leaving it 18 inches above ground. If the spikes are secured to these stakes before they have grown much, they will require no further attention. Our position is rather exposed, and this plan has succeeded perfectly here. Occasionally cold winds injure the young growths very much. With strong plants this only retards the period of flowering slightly, as, when the damaged growths are cut back, strong shoots start directly and soon make good progress during fine weather. I have occasionally exhibited these.

I find that a newspaper fastened in an acute pyramidal form over the plants makes a capital shading. Three sticks are required to support the newspaper over each plant. The shade must be applied as soon as the first flowers are open. The more flowers open on a spike the better, though length of the spikes alone does not constitute a point in favour of a given flower. Judges look more to the quality of the individual flowers on a spike.

It is a not uncommon occurrence to see Pentstemons at exhibitions with the flowers drooping or falling. If carefully gummed this does not happen. They are somewhat difficult to carry. The following plan I have found a very simple mode. If you wish to show half a dozen spikes take a round stake about 2 inches in diameter and tie the spikes closely together round the stake, always putting an extra spike or two in, in case of accidents. Three ties will be sufficient. Then place some wetted moss round the cut ends of the spikes and tie it firmly. The flowers will travel safely thus if the show-room is a short distance away. If some distance from home, place them in a box, fastening the stake at each end only. I have carried them thus to a show seventy miles, starting the previous day, without their being injured in the least.

As regards selecting varieties, the best plan is to write to a nurseryman who is noted for them, and ask for the best. There is a steady advancement in these, the darker-coloured flowers being especially fine.—R. P. B.

CUTTING DOWN CAMELLIAS.

NOTWITHSTANDING the long experience of "A LITTLE MARKET GARDENER" and the good results of cutting down Camellias he has shown us, I strongly urge your readers to pause before going

to the extreme of cutting. The last few weeks I have been very interested in noting the growth of Pelargoniums cut down close and those of the same variety left with a few leaves, and the comparison is very striking, from the simple fact that the leaves left are sufficient to keep the roots in action. Perhaps your correspondent may say, "What has this to do with Camellias?" but he must be reminded that the nearer we keep to Nature the better the result. From observations and experience combined I know we may cut or prune deciduous trees or plants in a manner which evergreens would not endure. I have had to manage large specimen plants of Camellias, and at times I have had to use the knife, but it is surprising what can be done with care. To obtain any plant in shape I should always prefer cutting a little year by year to beheading them at once; and as regards cleaning, I have no doubt with proper use of some insecticide a few leaves more or less would make but little difference in time. The best time to cut Camellias is when they begin growing, at least as soon as the buds are moving.—STEPHEN CASTLE.

THE CULTIVATION OF THE POTATO.

IN a way Potatoes may be said to be very easily grown, and for this reason they do not always receive that careful cultivation necessary to secure fine crops of fine produce. Hardly any other garden crop is so badly treated in the matter of manuring and preparation of the soil, yet hardly any other crop is more affected by the condition of the soil than the Potato. Not only in quantity, but in quality, is it affected by being generously treated in the matter of manuring, but even more in the matter of the proper preparation of the soil.

So far as my experience goes Potatoes are never so good as when planted on newly trenched soil, more especially after Strawberries. The same experience teaches that a stinted supply of manure is an evil. However, let not the reader imagine that I prefer a rich soil, as that word is ordinarily understood, for there can hardly be anything more certain than the fact that rich old garden soil produces Potatoes of not the best description. There is a difference greater than the inexperienced would dream of between soil turned up that has long been left undisturbed well enriched with plenty of fresh unexhausted manure, and poisoned manure-laden garden soil. New soil, no matter how poor, liberally treated with ordinary manure, is by far the best for producing a great crop of Potatoes.

Where this is penned the soil is naturally only 8 or 9 inches deep. Below is an impenetrable rusty, stony, sandy, clayey subsoil. This is perfectly watertight. In wet seasons the land is a bog, in dry ones a Sahara. In order to remedy this steps have been taken to improve it, and, unpromising as it may seem, the following course has been adopted with gratifying success. Trenches 2 feet wide are formed at digging time, and wheeled to the opposite end of the piece to be operated on. Then with a strong pick 6 or 8 inches depth of the subsoil is broken up, thoroughly pulverised, and the largest stones thrown out. Over this broken subsoil is placed a good layer of manure, and then some soil from the next trench. Over this another layer is spread, and the shovellings of soil left, with any loose subsoil, is thrown on the top roughly. This the winter pulverises, and from soil so prepared we have always crops of Potatoes unqualified either for quality or quantity by Potatoes grown on any other system.

A couple of years afterwards this may be trenched again, but instead of a shovelling we can easily turn up two spadefuls. To be sure the under one is rather liberally mixed with the broken-up subsoil, but it is now very different from what it was originally. Cleansed from rust by the washing rains, mouldered by time till it somewhat resembles soil, enriched by the layer of manure spread over it and with what has been washed into it from above, mixed with the original soil, thrown to the surface for further preparation, and further enriched by a layer of manure under it and a dressing of old hotbed manure over it, to be in due time forked in and mixed with it when need be, nothing whatever produces Potatoes like it, at least here; and no preparation so well suits Strawberries.

New soil and new manure—that is the watchword we conjure with when we wish to surpass the whole locality with Potatoes and Strawberries. When in July and August the Potatoes are removed the Strawberries with little preparation are planted. The year after we have a full crop of Strawberries.

It is not always we can afford either time or manure so to prepare the soil. Indeed, sometimes a crop of Broccoli or Brussels Sprouts has to be removed, and the ground at once occupied with Potatoes. Under such circumstances we have found ordinary manure which was laid up some months before and sprinkled with sulphate of potash gives results incomparably superior to what was obtained by means of ordinary manure, even where considerably more was given. Failing either we have found Lawes' Potato manure gives splendid crops. On rich soil a dressing of wood ashes will often wonderfully

increase the crops, and also enhance the quality. On poor soil a good soaking of cow urine will produce wonderful results. In all cases the manure should be as evenly distributed through the soil as possible. Chemicals should be sprinkled over the surface, solid manures be dug in, and urine applied some weeks before planting time.

Next in importance to preparing the soil is preparing the sets. Seed Potatoes should whenever possible be spread in an airy shed thinly. Under such conditions they will not readily sprout. Sprouting weakens, and should be guarded against if possible. Where they have sprouted badly it often happens that when planted many of them fail to grow again satisfactorily. It is useless attempting to save sprouts an inch long. Numbers are sure to be injured, and when the points are bruised they are very much in the same condition as Potatoes are that have been through the soil and become frozen. When, therefore, the sprouts are any considerable length it is better to rub them off, cut the tubers into sets, plant these thickly on an inch of soil in shallow boxes, just cover the tubers with fine soil, put them under greenhouse stages or similar positions, and keep them slightly damp till they grow. They are then in first-rate condition for planting on any pulverised soil.

When Potatoes are cut—and for ordinary crops they always should be—only one good eye should be left. Most growers leave two or more. Why, nobody knows, for nobody that ever instituted a proper comparison between having one plant, either of Potatoes, Cabbages, or Apple trees, and single plants, ever tried patches again. Not only should only one eye be left, but should that eye produce half a dozen stems they should be thinned out. The full-sized Potatoes are to be found, and found only, at the base of full-sized stems; the small Potatoes are to be found, and found only, at the base of undersized stems. It is an easy matter having a lot of chats, and equally easy having none. Between the weight of Potatoes from a crowded Potato plot and one when ample room is given and only strong stems retained there is little difference, only in the one case human food is the result, in the other food for pigs. We have tried both plans, and speak with a decision to which we are entitled.

Only when there is a danger of the sets decaying—as very early ones sometimes do when very wet cold weather ensues after planting—should whole Potatoes be used. If cutting be resorted to at all then cut to sets of one eye; if not to be cut for the reason above, do not encourage a crowd of shoots. If the soil is well prepared the stems will branch above ground, and the whole strength will be thrown into the few tubers that form, causing them to swell rapidly, thus ensuring earliness; to grow large, thus ensuring a heavy crop with no waste. The earliest crop in large numbers of gardens is later than it need be and more than half wasted, simply because gardeners will persist in growing so many stems all in a bunch. Try Cauliflowers that way.

Here it is foolish planting even the earliest Potatoes in the open air before April. If the season is cold they linger so long in coming up that their strength is dissipated, and thus they come in late. If it is warm they come up only to be cut down by frost in May. When planted not before April they generally succeed. Our main crop never does better than when placed out late in April. These dates suit us best, but may not be best for all districts.

Of more importance than the date of planting is the manner, and the state of the soil. We plant with the fork, breaking every clod, and throwing out every stone in the process. The tubers are covered with fine dry soil 4 inches deep. To each set about a handful of rich manure is given. This the fibres take to, and the plant in consequence begins life with vigour. The rest of the manure is diffused through the body of the soil. Dwarf varieties are allowed 2 feet between the rows, and 18 inches between the plants in the row. Such kinds as Magnum Bonum have 4 feet between the rows, and 2 feet between the plants in the row; this only in well-manured soil. Magnum Bonum planted in this way last year—a bad one here—gave us 16 tons to the acre, and no chats; as in the matter of dates, we give the distances that suit us.

Need more be said? Surely hoeing and earthing-up, lifting, and storing need no remarks; and but for the fact that everybody who sees our crop marvels at them and asks for some cultural particulars, as indicated above, the subject would not have been treated so fully.—SINGLE-HANDED.

HELLEBORUS HYBRIDUS VAR. COMMISSIONER BENARY.

OF late years the “dull-flowered Hellebores” have been elevated to a position in our gardens which they never had the honour of occupying before. All are fine in leafage, and would be well worth culture as hardy foliage plants even if no flowers were produced; but then there remains the fact that the flowers of many kinds are also most attractive, and especially valuable as coming in naturally at a season when hardy blossoms are, if not

entirely absent, few and far between. The different varieties of *H. niger*, or Christmas Rose, are now quite popular as pot plants, and in many good gardens they are specially cultivated in quantity, their snow-white flowers being esteemed alike for their beauty and long endurance after they are cut from the plant. A garden without Hellebores would be so much the poorer in winter interest, and in such a garden one might fully expect to find many other useful plants absent and not be disappointed. The late Miss Hope of Wardie Lodge, Edinburgh, made especial favourites of all the finer kinds, which she grew well and in quantity; and only a few days ago I had fresh flowers from a shady wood on the Hill of Howth nigh to the Bay of Dublin, fresh and pure as they could be in January, and, as the donor said, their purity reminded one of a snowdrift in March. Of the finer Hellebores are the following—*H. niger*, *H. altifolius*, *H. guttatus*, *H. cyclophyllus*, *H. odorus*, *H. purpurascens*, *H. atro-rubens*, *H. colchicus*, *H. “F. G. Heinemann.”* *H. orientalis* and its rosy variety *Dr. Moore*, *H. olyn-*



Fig. 48.—*Helleborus hybridus* var. Commissioner Benary.

picus, and last, but by no means least worthy in point of beauty, *H. Commissioner Benary*, a solid shapely flower of ivory-like whiteness densely speckled with dark purple as shown in our accompanying illustration.

M. Sauer of Berlin seems to have been one of the first of cultivators to take in hand the intercrossing of the Hellebores; but judging from the sliding tendencies shown by many of the species, Dame Nature has also crossed them on her own account.—D.

REVIEW OF BOOK.

Report of Observations of Injurious Insects during the Year 1881. By ELEANOR A. ORMEROD, F.M.S., &c. Sonnenschein & Co., Paternoster Row. 1882.

WITH the friendly aid of a circle of friends and correspondents Miss Ormerod has, for some years past, digested and published a variety of reports or notes that have been sent to her upon destructive or disfiguring insects. As yet her labours have been confined to those species that interfere with the success of the cultivator of vegetables and fruit, or that injure our plantations; but we may hope eventually that she will extend her investigations to the many species which often disappoint the hopes of the flower-grower, both in houses and in the open air. We find now-a-days that information

upon these subjects given in books presumed to be reliable is not always to be depended upon; species formerly reputed to be hurtful have in some instances almost disappeared from gardens, or they have proved to be only the foes of other insects. Then, from time to time, we discover new enemies, or old enemies hitherto unnoticed, and there is an interesting field for research in the relationship there is between the health of a plant and its liabilities to insect attack; and the comparison of experiments made in different directions as to preventive or remedial plans may lead to the general adoption of those methods of dealing with insect foes that have proved most effective.

A large space in this report is necessarily devoted to the Turnip, which has been in 1881 a rather unlucky vegetable. The year stands out prominently amongst the past years as one in which the much-dreaded "fly" played havoc—almost, indeed, so Miss Ormerod thinks, to the extent of being a "national calamity" for the time. Roughly calculated she considers the direct loss in England and Scotland could not be less than £670,000, and to this must be added an indirect loss which cannot well be computed. This mischief was done by species of *Phyllotritia* or *Haltica*, the chief offender being the familiar striped species *H. nemorum*, but in some places *H. undulata* turned out to be the objectionable fly or flea. The habits of all seem nearly similar, there being a succession of broods in one season, though *H. nemorum* is perhaps the most prolific and hardiest species. In Kent and in some other places the insects attacked beds of Cabbages that were growing near the Turnips they had been previously feeding upon, and entirely destroyed them. The range of this special attack in England was "through the counties extending from Northumberland and Cumberland, along the coast by Kent to Devon and Somerset, including in this range some of the more inland counties, as Beds, Herts, and Wilts. In the south, midland, and west it occurred at localities in Oxfordshire, Gloucestershire, Monmouthshire, Herefordshire, and Derbyshire." Some counties escaped entirely; Wales suffered little. The returns from Scotland report the pest as prevalent on the border and south counties, up the east coast to Fife, in Lanark, and as far north as Perth and Argyle.

One curious circumstance noted was, in many places the Charlock was attacked and demolished by the Turnip flea. Many who had tried soot, lime, and guano as applications to save a crop partially bitten found these of use, but only when there was moisture present. All agree that the Turnip flea flourishes most when there is a dry spring and early summer. Thick sowing has been recommended, particularly if this be done with seed of various ages and the addition of Mustard in small quantity, because the species of *Haltica* have a partiality for this, even preferring it to Charlock. Steeping the seeds in paraffin, turpentine, &c., has not proved notably efficacious. Some agriculturists have succeeded in killing myriads of the "flies" by rolling, by driving sheep over the fields, or by dragging a sort of machine contrived of boards, upon which tar or some viscid substance was smeared, and by which the "flies" were entangled. Crops well manured often escaped where adjacent crops on impoverished land suffered. In some districts of Scotland damage was done by a beetle of another tribe, the weevil (*Centorhynchus contractus*), which nipped the young Turnips just when they were showing themselves above the soil. Gaslime and quicklime were applied as a remedy with tolerable success. The tiny insect called the Turnip-flower beetle (*Meligethes aeneus*) was remarkably plentiful in several districts; these at first attack the blossoms and afterwards nibble the flower-stalks and seed-pods. On Cabbage flowers they occurred also in parts of Scotland. There were many places in the south of England, again, where the caterpillars of the Turnip moth (*Agrotis segetum*) swarmed.

Apart from the Turnips and Swedes, vegetables suffered, on the whole, less from their insect enemies than in some seasons. Probably this arose from the dryness of the earlier months of 1881. From Scotland there came sundry complaints about a maggot, which in some neighbourhoods seriously injured Cabbages and Cauliflowers. This proved to be the larva of *Anthomyia Brassicae*, which, when hatched, begins by eating the stems, then works down into the roots of the plant. In many districts of England the Gooseberry sawfly (*Nematus Ribesii*) was complained of; the application of paraffin in the strength of 4 ozs. to a gallon of water used before fruiting was found beneficial. We hope not only naturalists, but gardeners, will render all possible aid to Miss Ormerod in the important work she has undertaken.

CULTURE OF LACHENALIAS.

The genus *Lachenalia* includes between forty and fifty species, many of which are exceedingly beautiful. They are all natives of the Cape with one or two exceptions, therefore their requirements are identical with the majority of Cape bulbs, many of which produce flowers of great beauty. The colours in some are almost indescribable, whilst in others the flowers are inconspicuous and scarcely worth growing for general purposes. Many fine bulbous plants that used to be grown well years ago are almost lost to cultivation now; but *Lachenalias* are not likely to be neglected to such an extent as that. At the same time it is a great pity they are not more popular.

L. tricolor must rank amongst the foremost of the species both for colour and usefulness, and when once thoroughly established

in a garden its good qualities cannot fail to be appreciated. *L. tricolor* was introduced to this country more than a century ago; and although in the country so many years it has rarely been seen in perfection, and yet its cultivation is very simple. It has been remarked many times that there are more plants killed in this country through "coddling" than there are through rough treatment, and no doubt there is great truth in that statement, which is especially applicable to *Lachenalias*. Having been successful the last few years with the cultivation of *L. tricolor*, I venture to offer a few remarks to the readers of the Journal, trusting they may prove acceptable to those that are about to give them a trial.

Their treatment is very easy, nevertheless they are not thoroughly understood by many, otherwise we should see them more frequently. They are naturally deciduous, and to secure success it is highly necessary to well ripen the bulbs after flowering. August is about the best time to repot them. The bulbs should be shaken out from the old soil and arranged in three sizes. Of the largest I place half a dozen in small 48-size pots. These, of course, will produce the largest and strongest spikes of flowers. The second size can be potted eight or nine in the same size pot. The smallest can be grown in a pan. The compost I employ is half loam and half leaf soil, with a little sand. The pots will require to be moderately well drained, and over the drainage I sprinkle a little soot. The pots can then be placed outdoors in a sheltered position or in a cold frame. Very little water will be required till after growth commences, when they should be treated more liberally. Whilst growing the plants should occupy a light airy position, or they speedily become drawn and worthless.

The strongest bulbs will show their flower spikes about the latter end of November, when a few may be placed in a little higher temperature. By so doing they will be in flower by Christmas, and a display may be maintained for four or five months with the succeeding plants. After the flower spikes are visible a little weak liquid manure may be given advantageously. The bulbs that were forced first this year should be kept apart from the others, in order that they may be started first next year. When the bulbs have ceased flowering the foliage will soon show signs of decay. Water must then be gradually withheld, and in that state should remain till they are again potted for another season. I have several specimens in flower now, and have had some since Christmas. Some of the spikes have over twenty expanded flowers, with numerous buds that are not yet developed. When in flower they look exceedingly pretty arranged among other occupants of the greenhouse or conservatory, and last for several weeks.—W. K.

FUCHSIAS FOR AMATEURS.

WE sometimes find in small gardens a neglected frame. Not unfrequently this results from so valuable an adjunct being turned into a source of annoyance and disappointment through an injudicious attempt to grow a heterogeneous collection of plants unsuited to such quarters or to uniform treatment. Failure ensues, and the dilapidated frame testifies to its owner's loss of interest in what should be a source of pleasure for a great part of the year. I know no plant better adapted to such accommodation, nor any that will give greater gratification, than the *Fuchsia*, and I now give a few opportune hints as to good varieties and their management.

I devote a frame 4 feet square to about a dozen plants. In the late autumn, after these have well flowered, I easily dispose of them to someone having more ample accommodation on condition of receiving rooted cuttings in the spring. To those with large houses these are useful; they would be too large for my purpose the second year.

Fuchsias can be well grown without heat, but I would advise all who can obtain it to fill the frame with stable manure about the beginning or middle of April. The requisite depth can be obtained by throwing out the soil to about a foot or more. The usual proportions of such a frame would ultimately necessitate that being done to afford sufficient height for the plants. Shake the dung well out, water it occasionally in the course of filling, press it moderately together with the fork, and a sufficient hot-bed is easily made. If a quantity of fresh or half-decayed leaves can be had, their admixture will secure a more moderate and lasting heat. Fill the frame, as the whole will subside considerably. On the top place a few inches depth of sifted leaf soil and sand. This makes a clean substance in which to insert the pots, and with the leaves will give a most useful store of material for potting.

Asters, Marigolds, &c., can be sown, pricked out, and finally disposed of in the garden, leaving the frame available for the

Fuchsias as they advance. With the heat, cuttings inserted in leaf soil and sand will strike readily, or if young rooted plants are obtained these are started with a vigorous and rapid growth—an essential point in securing satisfactory plants of the Fuchsia. Place them when rooted in small pots, and not too firmly, employing a compost of leaf soil and decayed turf, with a little sand, using some of the last year's manure from the frame, or old cow dung gathered from the fields and rubbed down. In the successive shifts decrease the proportion of sand, omitting it altogether, and potting more firmly in the last. I have used with obvious benefit at this stage Amies' chemical manure mixed in the soil. Three shifts, the last into 5 or 6-inch pots, will be sufficient. Be careful to shade from strong sun, and to keep a moist atmosphere, in which young Fuchsias delight. Damp the foliage occasionally with a syringe or a pan with a fine rose, and, even when the plants do not need water at the roots, have the material fairly moist around the pots. Keep the frame rather close in the early stages, and in time pinch out the points of such shoots as incline to exuberant growth. Besides securing a pyramidal shape, the number of points, and subsequently the profusion of bloom, will thus be increased.

Throw out the dung as necessary to afford room, but keep the plants always near the glass. Preserve the surface soil of the pots always clean and open, and give a little weak liquid manure, increasing the strength when the plants are in flower. That from sheep's droppings I have found the safest and best for these, and indeed for many other plants. On the appearance of green fly syringe immediately with water in which a little black soap is dissolved.

With this treatment beautiful specimens of 2 feet or more in height will be obtained, which are sufficiently large for our purpose, and will well repay the trouble expended. The following varieties are the best with which I am acquainted. I have grown them now for several years, and they have been highly appreciated by all who have seen them.

Light Varieties.—Baroness Burdett Coutts, Covent Garden White, Jolly, Mrs. J. Lye, Our Future Queen, Starlight, and White Souvenir de Chiswick.

Dark Varieties.—Albert Victor, Crown Prince of Prussia, Dr. Kitto Giddings, Killiecrankie, Lord Falmouth, Rhoderick Dhu, and Try me, Oh!

I shall be glad if any of your readers can recommend any others of superior merit, excluding double varieties, or such as are only remarkable for peculiarities of foliage or form.—A NORTHERN AMATEUR.

INDIAN AZALEAS AND VARIETIES.

THE genus Azalea is one of the most ornamental of the vegetable kingdom, indeed in beauty they are only equalled by the Rhododendrons of the eastern and western hemispheres. Whether we take the hardy Ghent varieties, the mollis section, or the more tender Indian species and varieties, what a wealth of beauty we possess! Who that has once seen the Azaleas in the "wilderness" at Kew will cease to remember them, or the glorious specimens of the more tender kinds to be seen occasionally in the exhibition tent? Azaleas are as indispensable at our early spring exhibitions as Roses in pots are in the month of May. For the decoration of the sitting-room, greenhouse, or conservatory they have no rival.

Azalea indica is propagated by grafting and by cuttings as a rule; and the general principles are much the same as in the propagation of the hardier kinds, with the exception that the former require more warmth. I will assume that the grower has either propagated them already or has procured free-growing plants from a nursery, which is generally the most economical way. If the plants are thickly set with buds, and not in a very vigorous condition, I strongly recommend that the greater part of the buds be removed, leaving only sufficient for the plant to properly develop, and so prove the variety to be true to name, or misnamed, as the case may be.

The disbudding process should be carried out more or less in the case of nearly all the Azaleas that are imported from the Continent, if, indeed, the plants themselves do not save the cultivator the trouble by going "blind," as, owing to the greater light, the wood has been so well matured as to cause the very weakest of shoots to set buds, thus very severely taxing the energies of the plants. The results are an enfeebled constitution if allowed to develop all the flowers possible, and consequently followed by unsatisfactory growth for several years, if not premature death. After flowering, do not repot recently bought plants unless absolutely necessary, but submit them to as few changes as possible, death being frequently accelerated by a check and possible injury to the roots before the top has become accustomed to the change of air

and the roots to a change of water, or, in other words, before the plants have become acclimatised. Assuming, then, that repotting is necessary, prepare a compost of good dark brown fibry peat three parts, pulled in pieces just sufficiently small to be rammed down between the ball and the pot, one part leaf soil, and one part sharp silver sand.

Having mixed the soil and placed it where it can be slightly warmed, next procure clean pots 2 to 3 inches larger in diameter than the pots out of which the Azaleas are to be turned. Drain them as carefully as possible by placing a large crock hollow side downwards over the hole and covering the bottom of the pot with similar pieces; next should follow a thin layer about an inch square, to be succeeded by a layer of half-inch crocks, and the whole to be secured by some of the most fibry of the peat being placed closely together over the crocks, as little space to be taken up by the drainage as possible. All being now ready, place some of the compost in the pot and press it down firmly. Fix the ball so low that when the new soil is filled up level with the top of the ball there will remain space to hold sufficient water to saturate the whole mass at one watering. In the process of potting the soil should in all cases be rammed as firm, if possible, as the old ball of soil, but not firmer, nor yet much looser, failure or success depending in a great measure upon this.

Potting being completed, the plants should be given a temperature of 65° at night to 75° by day, allowing a rise of from 5° to 15° by sun heat, the latter figure being only allowed at closing time, and copious syringings should be given morning and evening, syringing well the under surface of the foliage. A little ventilation all night will be beneficial, if the ventilators are placed where the fresh air may be warmed before coming in contact with the foliage of the plants. If it is desired to obtain two growths in one season in order to gain size, the points of the shoots should be pinched out when the terminal leaf is developing, the above temperatures maintained, and if necessary the night ventilation discontinued and the temperature raised to 70°, frequent dampings and syringings being given in order to induce a second "break." If the cultivator is satisfied with one sturdy growth in the season, then the atmospheric humidity should be lessened as the terminal leaves develop, more air being allowed, and the temperatures may be lowered as soon as the growth is fully matured and the flower buds formed. Shading should only be used to prevent absolute scorching, therefore that which is moveable is best, and should be used as little as possible consistent with safety. Gradually discontinue syringing as the days shorten and the flower-buds develop. In bringing Azaleas into flower a warm and moist atmosphere is beneficial, the atmospheric moisture being reduced when the flowers expand. An occasional application of weak liquid manure will materially increase the size of the flowers, and top-dressings of either Clay's fertiliser or Standen's manure are beneficial when the pots are filled with roots.

Selecting from forty-eight varieties grown here I give a list of twenty-four of what are, in my opinion, the best as regards size, colour, and form of blossom, leaving out the beautiful varieties of the Amœna section—Apollon, Bernhard Andreas alba, Cedo Nulli, A. Borsig, Charmer, Comtesse de Flandre, Duc de Nassau, George Loddiges, Jean Vervaeke, Madame Van der Cruyssen, Mdle. Marie Lefebvre, Charles Leirens, Mrs. Turner, Superba, Empereur du Bresil, Reine du Pays Bas, Stella, Princess Louise, Mont Blanc, Marquis of Lorne, Madame Paul Deschryver, Reine Cleopatra, Comtesse de Beaufort, and Grandis. The twelve first in the list are, I consider, the best of the twenty-four. Anyone wishing to purchase and being unable to select their varieties whilst in flower, may rely upon any of the above-named being of sterling merit.—J. U. S.

THE FORESTS OF INDIA.—A lecture on this subject was lately delivered by Sir Richard Temple, Bart., K.C.S.I., under the auspices of the Scottish Arboricultural Society. After speaking of the importance of forestry in general, and of the necessity for improvement in the conservation of forests, not only at home but in the colonies and India. It was to be hoped a school of forestry would soon be established in Great Britain, to send out skilled foresters for the improvement of the forests of India. An important and extensive public opinion was growing up, at least in North Britain, in favour of forestry in general, not only in Scotland, but in the colonies, and especially in India. It was this public opinion which was wanted to stir up the minds of their legislators and statesmen in this most important matter. After referring to the extent to which the forests of India, which had at one time been almost co-extensive with the country itself, had been destroyed, he said they may ask how it came that he had such a sorry story to tell regarding the history of forest conservancy in India? It was simply the want of instruction and education in those matters. But this fault was now being remedied. Having next discussed at some length the effect of forests on the climatic and atmospheric conditions of a country, with special

reference to India, the lecturer said that in India they saw the two things invariably linked together—on the one hand, disforestation and drought; on the other hand, forests and abundant rainfall. Having indicated the grounds upon which he urged that a proper system of forest conservancy in India was absolutely necessary, Sir Richard proceeded to ask to what extent that necessity had been properly recognised by the Government of India. There was now 25,000 square miles of forests in India that were properly preserved, and 50,000 square miles of forests which were imperfectly preserved—in all, 75,000 square miles. In Scotland they reckoned their forests by acres. British India had an area of 1,000,000 square miles. Therefore 75,000 square miles of forest represented that $7\frac{1}{2}$ per cent. of that area. Or if they chose to reckon only the 25,000 square miles that were properly preserved, that would give $2\frac{1}{2}$ per cent. of the total area. If they took it in acres according to the Scotch plan, they had 48,000,000 of acres preserved, perfectly and imperfectly together, of which 16,000,000 were, he ventured to say, perfectly preserved, even in the manner which would be approved by practical Scotch foresters. Let them compare this result with the result which had been mentioned by Mr. Hutchison. He had made out that though there had been a regrettable falling-off in the forest area of Scotland, still, as against 900,000 acres of forty or fifty years ago, they had 750,000 acres, or three-quarters of a million of acres under woods and forests. That gave just $3\frac{1}{2}$ per cent. upon the total of twenty millions of acres of area in Scotland altogether. So that, on the whole, India compared favourably with Scotland as regarded the total area of preservation, perfect and imperfect together, but compared unfavourably with Scotland in respect of the area of perfect preservation. With reference to the financial result, he said they would be happy to hear that the Government of India was deriving a considerable income from those forests. The gross proceeds amounted to £750,000 per annum, and the expenditure to £500,000, giving a net return of £250,000 a year.—(*Colonies and India*.)



HARDY FRUIT GARDEN.

THE continuance of efficient protection for the flowers of fruit trees against walls is at the present time one of the most important matters in this department, and when the fruit is set the protection must not be hastily withdrawn, as the destruction of the young fruits of the Apricot and Peach by frost is not an unusual occurrence even when they have attained considerable size. The blossom of fruit trees is unusually abundant, and, although thinning is sometimes advised, it is seldom practised. It may, however, be done with advantage in cases of trees producing a superabundance of blossom, especially weakly trees. Apricots have set well, and where the fruits are very numerous some should be removed when they become the size of horse beans, but it is advisable to do this gradually. When the fruit of Peaches and Nectarines is set the trees should be examined, and if aphides are present on the young foliage syringe the trees with tobacco water, a gallon of juice diluted with eight gallons of rain water, the mixture being strained before use. The afternoon is the best time for the operation, especially when it is likely the night will be mild. Disbudding should be attended to as soon as the shoots are sufficiently advanced, reserving a shoot at the base of the current year's bearing wood, and another on a level with or above the fruit, which should be stopped at the second or third joint. Shoots on extensions of last year should be reserved 15 to 18 inches apart, a similar distance being allowed between the branches; but as the trees are trained fan-like, this refers to the branches at 3 or 4 feet from the point where they originate. Fig trees trained to walls in the open air may now have the protection removed from them, and the shoots should be thinned as may be found necessary, afterwards tying or nailing them to the walls. Regrafting such fruit trees as the Apple and Pear when needed should be proceeded with at once.

FRUIT HOUSES.

Peaches and Nectarines.—The stoning in the earliest house will soon be completed, but until this is effected the temperature must be equable. In the latest stages of stoning the night temperature may range from 60° to 65°, and 70° to 75° by day from sun heat. Red spider must be effectually kept in check by syringing

the trees daily with clear rain water not less in temperature than the mean of the house. Attend to tying-in the growing shoots as they advance, stopping the shoots reserved to attract the sap to the fruit, at every leaf, and laterals on all growths to one joint as made.

In succession houses tying and regulating the shoots as necessary must be attended to, being careful not to overcrowd them. Disbudding in the latest houses must be done gradually. Thin the fruits, leaving sufficient for the crop, and an allowance for losses. Syringe regularly in the morning and afternoon of fine days, and the inside borders must be watered as needful, examining them not less frequently than once a week for this purpose, and when a supply is needed let it be sufficient to moisten the soil to the drainage. Fumigate upon the first appearance of aphides. In the latest house great care will be necessary in order to keep the crop back for succession, as, owing to the fine sunny weather, the trees have flowered and set their fruit much earlier than usual. Ventilate freely in favourable weather.

Pines.—The rooting of the recently potted suckers or plants will be indicated by the growth, and as soon as this is effected constant attention must be paid to the bed, as the young roots which issue from vigorous suckers or plants are tender and easily injured by excess of bottom heat, hence 85° is sufficient, and the pots should be lifted if it exceed this. Under good treatment these plants will make roots rapidly, therefore have the needed materials in readiness so that the potting can be done at the proper time, which is when they are moderately well rooted, it being important that the plants to give satisfactory results be grown on without check. As this will be the final potting the compost should consist of fibrous lumps of loam, which must be rammed firmly round the roots of the plants; and they should be supplied with tepid water at once, plunging them in a bed having a temperature of 90° to 95°, which should be maintained until the roots have grown into the new soil. Fruiting plants or such as are flowering should have a temperature of 65° to 70° at night and 5° more by day, and from 80° to 90° by sun heat during the day, closing the house with sun heat at 85°, well damping the house at the time.

FLOWER GARDEN.

Pruning evergreen shrubs may now be done with safety, and this though frequently neglected amply repays for the labour required. Hollies, common and Portugal Laurels, soon become ill-shapen, but timely attention to pruning induces freer growth and increased root-action. Rhododendrons bear pruning in closely, but it is necessary to do this now, as when the pruning is deferred until after flowering the growth is made so late as not to become sufficiently ripened to bear the weather should it prove severe. The early pruning destroys the current year's flowering, but it is the safest method for overgrown bushes. The planting of evergreens is perhaps best done when they are starting into growth or a little advanced, moist genial weather at the close of this month or early in next month being the most suitable for transplanting the choicer kinds and Conifers.

Pruning Roses should be completed, and as these have made considerable growth from the points of the shoots they should be cut back to three or four buds at the bottom, according to the vigour of the shoots. Remove all old weakly wood, and as it is likely we may yet experience severe weather those pursuing this practice may escape injury.

Grass is growing fast, and must when necessary be mowed, keeping it well rolled, edging the sides of walks, flower beds, &c., so as to give them a neat appearance and facilitate edging with the shears during the remainder of the season. Where bare and mossy patches occur in lawns stir the surface with a rake, then sow grass seeds to be covered with fine sifted soil and lightly rolled. For renovating lawns, soot and wood ashes applied in equal proportions at the rate of a peck per rod are unequalled, and the present is a suitable time to apply it.

A sowing of hardy annuals of the most showy kinds may be made in the open borders; and if a sowing be made in small pots placed in a cold frame, hardening the seedlings before planting out in May, they will enliven the borders in early summer. Seed of half-hardy annuals must be sown soon, nothing being gained by too early sowing.

as the plants when grown in heat do not produce sturdy and well-developed growth. A gentle bottom heat is essential to speedy germination of the seeds and the steady progressive growth of the plants, hence attention must be given at once to the preparation of the bed, a mixture of three parts tree leaves and one part fermenting dung affording a milder and more suitable heat than manure alone. Ten-week Stocks, Asters, Phlox Drummondii, Scabious, Marigolds, &c., cannot be grown too sturdily.

PLANT HOUSES.

Orchids.—*Calanthe vestita* must be shaken out of the old soil, cutting off the dead roots, and repotting the pseudo-bulbs in a compost of three parts turfy peat to one of turfy loam and old cowdung, with a sprinkling of crocks, a little charcoal and sand. Drain the pots 2 or 3 inches deep according to their size, place a layer of sphagnum over the drainage, and then fill to within an inch of the rim with the compost, on which place the pseudo-bulbs, working in some of the soil between them. As soon as they are growing supply water freely, the soil never being allowed to become dry until the growth is completed. *C. Veitchii* and *C. Turneri* require the same treatment. Repot *Anguloas* in good fibrous peat, half filling the pots with potsherds, then a layer of sphagnum, filling with peat and crocks, keeping the pseudo-bulbs a little elevated in the pots. Repot *Sobralias* in peat and turfy loam, some potsherds and a little sand well mixed. These and *Calanthe masuca* and *C. veratrifolia* should have copious supplies of weak tepid liquid manure. *Cypripediums* and *Cymbidium*s also are improved by a little weak liquid manure if the pots are full of roots. *Odontoglossum nævium* and *O. Phalæ-nopsis* need to be freely syringed and to have a good supply of water at the roots, now being a good time to repot any that require it. These should not have a temperature at any time less than 55°. Frequently sponging the leaves of *Odontoglossums* and *Masdevallias* is needed to keep thrips in check. Moisture must be liberally supplied in the East India house, the evaporation troughs being filled with water, some also being poured on the floors and benches in the morning and evening, and after a sunny day the plants that have commenced their growth may be lightly syringed. Plants on blocks now require frequent syringing, and those growing may be dipped in tepid water once a week. The water for all purposes should be a few degrees warmer than the houses, and rain water only should be used. Except on very sunny days but little ventilation will be required. The temperature of the East India house should be kept at 70° at night and 80° by day, or a few degrees more from sun heat; the Mexican house 60° at night and 70° by day; the cool house 50° at night and 55° to 60° by day.

THE BEE-KEEPER.

WHAT TEMPERATURE DO BEES REQUIRE DURING THEIR TIME OF REST IN WINTER?

[A Translation from the "*Bienenzeitung*." Communicated by Mr. Alfred Neighbour.]

(Continued from page 224.)

IN the hot climate of Syria, Ethiopia, and Brazil bees do not suffer harm from the heat; and while in our own country they keep perfectly well in a hot summer and mild autumn, they are supposed to perish during a cold winter from excessive heat. Who can comprehend these contradictions? In two cases only is this conceivable. First, if the whole atmosphere is heated to such a degree as almost to melt the wax, causing the combs to break, which is reported to be the case in the neighbourhood of Aden in the Red Sea; and second, if a large colony get excited while the entrance is closed. In such an event the heat in a short space of time may become so great as to cause the combs to break. Many of the colonies sent to the exhibitions at Cologne, Erfurt, and Potsdam, with large population and abundant honey, but meeting with an accident on the way, arrived in this condition. I may also refer to the case of a bee-keeper who, in order to keep back a swarm which was on the point of issuing simultaneously with another swarm, quickly closed the entrance of the hive, and shortly after found the bees suffocated and the wax in a melting state.

But I deny that a colony of bees can be ruined or injured by excessive heat when the entrance is open, and I consider it to be quite im-

possible. For if the temperature in the hive should have been raised somewhat high, as it might be during a necessary removal of the hives, a portion of the bees rush out of the entrance as soon as open—a number of bees, which return immediately, and by setting up a terrific hum expel the excessively hot and foul air from the hive, which in a short time re-establishes quietness among the bees. But if quick fanning should prove of no avail, because the air that rushes into the hive is just as hot as the air which is driven out, the bees may be seen to hang out, which we frequently have an opportunity of observing on sultry days in the summer. In winter even we may happen to see bees hanging out if the colonies have a large population and are kept in rather a warm place. When my apiary, containing sixty colonies and many empty hives, was completely destroyed by fire in 1846 I had an opportunity of observing the behaviour of the bees during the heat which human beings were unable to endure. The hotter it grew the larger the number of bees became which hung out, but otherwise they remained perfectly quiet until they were finally seized by the flames and consumed. Thus the bees know how to shift for themselves even during an unbearably great heat, as long as relief is possible. If, however, Dr. Krasicki wants to make us believe they suffer and perish from excess of heat in winter while the entrance of the hive is open, they would be the most stupid creatures on earth. Dr. Krasicki surely will not be able to plead that the cold does not permit the bees to move to the entrance of the hive to establish ventilation, as excess of heat and excess of cold, or the absence of heat, are contradictory terms, the one excluding the other.

But does not Dr. Krasicki produce arguments and evidence in favour of his peculiar opinion—that bees, like Polar bears, can stand cold better than heat; at least, better during repose in winter, and that they are more likely to perish from the latter than from the former? He certainly states his reasons, but they are such as you might expect to hear. They become valueless if examined closely. He relates how a colony in a log hive, the door of which had given way, survived extremely cold weather, and how another community existed for several years in a hollow tree with a large opening through which the bees entered. But what is there particularly remarkable in this, and what does it prove? I myself have had similar experience, of which I have given an account on various occasions. Let us consider the bees retired into the very centre of the structure of combs, the latter being covered with hoar frost, and the passages between the combs, so to speak, filled up with feathers, or we may consider the cluster of bees wrapped up as in a feather bed. As long as the bees keep close to the honey they are able to brave the most severe cold, no matter whether the hive be closed or open. An open door or a good size entrance is a real advantage to bees, because the vital air (oxygen) cannot so easily become exhausted as when the door is tightly closed or when there is only a small entrance, closed, perhaps, with ice.

In the winter of 1845 I had an opportunity of noticing the appearance of the interior of hives after being exposed to extremely cold temperature for a considerable time. A truly Siberian winter continued without interruption from the beginning of February till Easter. I had many of my colonies in wooden boxes, and even those in heavy log hives taken into my warm room when the bees were on the point of perishing, in order to save as many as I could. But what a sight it was whenever I opened a hive!

In Germany, indeed, we can only desire such a mild temperature for our favourites, but we cannot create it. In the struggle for existence the bees will always have to battle against their greatest foe, the cold. It will remain our business to protect them against this enemy as much as we possibly can for the well-being of the bees and in our own interest, for the more honey is saved by the protection afforded the larger will be the quantity which we can harvest.

In a future article I propose to state how bees may be assisted in the struggle against their greatest enemy, the cold, and how the latter may be kept out of the hive as much as possible.—DR. DZIERZON.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE STANDARD FRAME.

A MEETING of the Special Committee appointed by the members of the Association at the recent General Meeting, held on February 15th, for the purpose of determining the form and size of a standard frame for general use throughout the United Kingdom, was held at the Langham Hotel on Thursday, March 16th. Present—Messrs. T. W. Cowan (in the chair), C. N. Abbott, F. Cheshire, J. M. Hooker, A. Neighbour, Rev. G. Raynor, and the Rev. F. T. Scott. Mr. J. G. Desborough was unavoidably prevented from being present. After the consideration of a large amount of correspondence, and the question having been fully discussed, it was unanimously resolved that the outside dimensions of the standard frame should be 14 inches long, 8½ inches deep; the top bar to be three-eighths of an inch thick, bottom bar one-eighth of an inch thick; side bars a quarter of an inch thick. These dimensions do not refer to anything outside of the rectangle. It was also resolved that standard frames duly stamped should be provided at one shilling each.

TRADE CATALOGUES RECEIVED.

Harkness & Son, Bedale, Yorkshire.—*Descriptive Catalogue of Dahlias.*

B. K. Bliss & Sons, 34, Barclay Street, New York.—*Catalogue of Potatoes (Illustrated).*

George Templeton, Prestwick, N.B.—*Catalogue of Florists' Flowers.*
S. B. & W. F. Parish, San Bernardino, California.—*List of Plants Growing in South California.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Rose Cuttings (H. B.).—Different methods of striking cuttings of Roses were described in the Journal last autumn. If you will state the plan you followed, whether the cuttings were inserted in a frame or the open air, their present condition and distances apart, we will gladly advise you on the subject.

Seedling Oxlips (A. Fitch).—The flowers arrived in such a dried and shrivelled state that we can scarcely form an opinion of them. They appear to resemble Primroses, while the leaf is downy like that of the Cowslip. You do not say whether the flowers are solitary or produced in umbels; if the latter the stems are of unusual length.

Hose-in-Hose Polyanthus (B.).—The flowers are very attractive good in size and form, and represented in various colours, the majority being very rich. It is not often we have better examples of duplex Polyanthus brought to our notice, and you cannot do better than continue raising seedlings from the best flowers.

Double White Azaleas (S. L. B.).—There are very few varieties such as you appear to require, but with a good stock of the following you would be able to insure a supply of flowers from December to late in summer. They are named in the order they flower—*Narcissiflora*, A. Borsig, Bernhard, Andreas alba, Flag of Truce, and Madeleine. These are double and semi-double, the flowers of good substance, and pure white.

Marechal Niel Rose Unhealthy (H. T. D.).—You say nothing what ever relative to the age of the plant nor the stock, if any, on which it is worked. The plant is debilitated, but from what cause we have no means of determining. Probably you did not prune it sufficiently after it flowered last year, and hence it has made a number of weak growths and small foliage instead of strong shoots and large leaves. You will see the best method of growing this Rose alluded to in another page under the heading of "Doings at Burghley." Have you given the plant liquid manure?

Grubs Attacking Plants (H. W. N., Syston).—These are the larvæ of a small beetle or weevil, *Otiorhynchus sulcatus*, often injurious during the spring, especially to succulent plants, through its feeding upon their roots or stems. The application of articles that are sufficiently caustic to kill the grubs is apt to destroy the plants also. Some have found that clear lime water is of service in checking their ravages, the plants being freely watered with this. Paraffin diluted to the extent of 1 oz. with two gallons of water has been safely used, the solution being well agitated. One of the stems enclosed contained a mass of small worms that had located themselves in a hollow made by a beetle grub. These may have been nurtured in the manure mentioned, though the beetles would not be thus introduced.

Dielytras for Forcing (Old Subscriber).—Although it is necessary to cut some of the large roots of Dielytras when taking the clumps up for forcing, the crowns will yet grow freely and produce flowers abundantly if copious supplies of water are given and liquid manure occasionally, as numerous small feeding roots are speedily formed when the plants are grown under favourable conditions. Root-mutilation can of course be avoided by growing the plants in pots plunged in ashes or soil, but unless they are well supported through their season of growth such strong crowns will not be formed as if the plants were planted out in suitable soil and a good position.

Azalea mollis and Andromeda floribunda (Idem).—The details of culture on page 167 relative to the culture of Ghent Azaleas apply equally to varieties of *Azalea mollis*, and you cannot do better than follow Mr. Bardney's advice. You do not say whether the Azaleas and Andromedas to which you refer have been forced this spring or not. If they have not they will need little or no preparation for forcing next year, but if they have been forced the growth must be encouraged in a very light and cool house, and the plants plunged or planted out in the open air for those growths to mature. If plunged much care and attention in watering are required to be exercised throughout the season.

Gravel Walk (R. B.).—The most inexpensive method that we can suggest "in making a gravel walk to prevent weeds and Dandelions coming through" is to spread a layer 3 inches thick of gaslime before using the gravel. As there are gasworks in your district the lime refuse could be had at little cost; but if there are Dandelion roots in the soil why not dig them out before making the walk? All the weeds on walks do not "come through," but the majority are the result of seed scattered on the surface. Walks can be kept free from grass by a dressing of salt once a year, and weeds do not grow at all in well-made asphalt or concrete walks. Very few weeds, however, will come through a layer of fresh gaslime.

Various (Reader).—Disbud the Vines gradually, removing a few buds at a time at intervals of three or four days, retaining those that are best placed or which show the best bunches, which growths alone should be left to develop

foliage, so that every leaf can be fully exposed to the sun. For forming pyramid Coleuses proceed as if you were forming pyramid Fuehsias—that is, train the leading shoot upright; when it is 9 inches long pinch off the point and you will obtain two shoots, one of which train upright as before, pinching the other according to your judgment, and continue the same process until the specimen is formed. Sow the Deodar seeds in a bed of sandy loam and peat, over which place a frame; keep the soil moist, not so much by frequent applications of water as by shading to prevent evaporation, and wait patiently until the seedlings appear.

Amaryllises not Flowering (A Young Gardener).—Small offsets surrounding larger bulbs will not prevent the former flowering provided the foliage is well developed and the growth is matured; still it is advisable to remove the offsets when large enough. The plants ought certainly not to have been dried off in July. Grow the plants in a warm and very light position; in August diminish the supply of water and expose them to the full sun and air, applying throughout September only sufficient water to keep the foliage fresh. During October, November, and December give no water, and all the bulbs that are strong enough will flower in the spring. Your plant is a *Lantana*.

Tulips and Hyacinths (Vero).—Tulip flowers often fail to expand in consequence of the pots remaining covered too long, and the growths covered too deeply with ashes. If this is not the cause of the buds withering in your case, we are unable to account for the disappointing circumstance. Hyacinths after flowering should be placed in a light position, and be watered to keep the foliage fresh as long as possible. A frame at this season is suitable. If you place them at once in the open air they must be shaded from the bright sun for a few days or the leaves will be scorched, and from possible frost at night. Remove the spikes as soon as the flowers fade, and endeavour to produce stout healthy foliage, and allow this to mature under the full influence of sun and air. The bulbs will then afford useful flowers next year, but not massive spikes.

Vines for Small House (Brookfield).—We do not consider it wise to have many varieties in one house, especially to grow early and late kinds in the same structure. There is no white Grape equal to the Muscat of Alexandria for late autumn and winter use, but it does not ripen well in all vineries managed by amateurs. You say not a word about the size and means of heating your house, and it is just possible you may defeat your object by attempting to crowd in too many Vines. We, however, name the number you require somewhat in their order of ripening—*Poster's White Seedling*, *Black Hamburg*, *Madresfield Court*, *Muscat of Alexandria*, *Trebbiano*, *Alicante*, *Mrs. Pinck's Muscat*, and *Lady Downe's Seedling*; but we think it very easy to err by planting them all in one "small house." Half of them would in all probability give far more satisfaction. This, however, depends on the object you have in view and the means at your disposal for attaining it.

Thrips on Acacia (S. F.).—The spray you have sent is not of a Heath but *Acacia armata*, which is a very useful plant for the decoration of the greenhouse or conservatory in spring. The insects may be destroyed by syringing the plant with a solution of petroleum, prepared as described in a reply to another correspondent, or by dissolving 2 ozs. either of nicotine soap or Gishurst compound in a gallon of water. The plant should be laid down and syringed forcibly on all sides, repeating the process in about ten days; it may afterwards be syringed with pure water. After the plant has flowered it should be moderately pruned, placed in a genial temperature, and syringed occasionally to encourage fresh growth. When the shoots are half an inch long the plant should be repotted if needed or top-dressed. It succeeds in equal parts of light turfy loam and turfy peat, with a liberal admixture of sand, potting firmly. As the growths extend they must be exposed to abundance of light and air, a frame in the summer being suitable with the lights removed day and night in warm weather except during heavy rains; or the plant may be placed outdoors in the full sun for a few weeks in August, the pot being shaded to prevent the roots being scorched. The *Tropeolum* is *T. Lobbianum*, or one of its varieties.

Young Pelargoniums (C. E. C.).—Take off the tops 4 or 5 inches long and insert them as cuttings, each in the centre of a 2½-inch pot, in sandy soil, and place them on the shelf of a greenhouse if you have not a warmer structure. They will make attractive flowering plants during the season. When roots protrude through the pots repot firmly in turfy loam and a little decayed manure. Pinch out the points of the plants when they have produced two or three fresh leaves, and grow them in a very light position with abundance of air. The decapitated plants will also be rendered bushy, and will flower freely under the same general treatment.

Planting Violets (Idem).—April is a good time for procuring and planting Violets. They like deep, rather rich, and rather strong soil, and a somewhat shaded position. In the full sun they are often much injured by red spider attacking the foliage. Strong offshoots or young plants may be planted a foot apart. As you do not state the age and strength of your Rose we cannot say how it should be treated; but if it is established and strong the blooms may expand as it is growing under glass; if weak it should be pruned, so as to promote free growth.

Destroying Cockroaches and Crickets (C. S. & Co.).—One of the best materials we have seen employed for destroying these pests is phosphor paste, of which a patent preparation can be obtained at some chemists' and oilmen's stores. This is generally employed with satisfactory results in some public gardens, where, owing to the large quantities of plants imported, such vermin are always troublesome. A small portion of the paste is spread thinly upon pieces of paper, which are placed near the haunts of the insects, and they appear rather partial to the substance, though it quickly destroys them. A mixture of honey and arsenic has been similarly used with good results, but it must be carefully employed, owing to the extremely poisonous qualities of the arsenic. A very simple mode of destroying cockroaches is plunging inverted bellglasses up to the edge, half filling them with sweetened liquor such as treacle and water, and if a little stale beer be added it proves an additional attraction for them. We should be glad if any of our correspondents would describe other methods that have proved satisfactory.

Rhodanthes in Pots (B. A. Z.).—In the London market gardens large numbers of *Rhodanthes* are grown for sale in the spring and summer months. The general practice is to sow the seed in boxes of light peaty soil from January onwards in successive batches. When the seedlings have attained a suitable size—that is, when they have two or three leaves, they are pricked out regularly into 48-size pots. A compost of turfy loam, peat, and sand is employed and placed very firmly in the pots, good drainage being supplied. From twelve to twenty plants are placed in each pot so as to obtain a compact specimen, and as growth advances they are tied in the same way as *Mignonette*—namely, with a few light sticks at the side of the pot, a piece of matting being twisted round each to hold the plants compactly in the centre. They are grown either in heated frames or on the shelves of a warm greenhouse, and great care is needed in the supply of water, never allowing the soil to become excessively wet or dry.

Filling a Fern Case (B. D.).—In preparing the case for the reception of the plants give plenty of drainage, consisting of potsherds, the larger at the base and the finer at the top, with a few pieces of charcoal. A suitable compost may be made of peat, sand, and a little turfy loam, also employing sandstone in pieces of various sizes, which should be embedded in the surface and will prove useful in retaining moisture. A few moderately strong-growing Ferns will be required, and beneath them the surface can be covered with forms of dwarfish growth, especially the stronger of the Filmy Ferns. Among the larger Ferns suitable for your case one each of the following will probably be sufficient—*Pteris cretica* albo-lineata, *P. quadriaurea*, *Trichomanes radicans*, *Pellaea rotundifolia*, *Onychium auratum*, *Gymnogramma chærophylla*, *Asplenium cicutarium*, *A. marinum*, *Doodia aspera*, and *Selaginella cœsia*. Of the smaller Ferns *Fadyenia prolifera*, *Doodia caudata*, *Rhipidopteris peltata*, *Davallia parvula*, and *Actinopteris radiata* are distinct, neat, and pretty. For covering the surface the following *Selaginellas* would be useful—*S. apus*, *S. Poulteri*, *S. Kraussiana*, and *S. Martensii*, and if only one sort is required *S. Kraussiana* should be selected. *Hymenophyllum tunbridgense*, *H. unilaterale*, and *H. hirsutum* are also dwarf and well fitted for including with the former if the space is not sufficiently filled. Small plants are preferable unless it is desired to completely furnish the case at once.

Pelargonium Leaves Spotted (W. X.).—The disease is not the result of insect attacks, but is generally induced by defective root-action. If the soil is kept very wet and the atmosphere close and moist the evil will increase rather than diminish. We can only suggest that the plants have probably been too moist at the roots at some period of their growth, or the cuttings may have been taken from unhealthy plants. With healthy root-action and a warm but not too moist atmosphere the plants will probably improve; but any that are seriously affected we should cut down, and healthy growth may issue. We never propagate from plants affected with the spot to the same extent as yours appear to be. Plants will often grow out of the disease when they are planted out in summer: if they do not do so they should be thrown away.

Killing Insects (An Amateur of the Second Year).—We hope you will succeed in having a satisfactory crop of Cucumbers and no insects; but we know we could have stronger and cleaner plants that would produce at the least twice the quantity of fruit during the season than you can have by your method. But carry out your project; we like to see people engaged in encountering difficulties and conquering them. We have not tried the effects of a mixture of petroleum and soap on *Cinerarias* in flower, never having had occasion to do so, as we take care that our plants are clean before the first flower expands. You can cleanse the plants by laying them on a mat or a grass plot and syringing them well on all sides with pure water. Your note will be readily inserted, possibly next week.

A Seedling Begonia (Sussex).—The leaves and flowers you sent of a supposed hybrid precisely resemble in all their characters *Begonia heracleifolia*, a native of Mexico, whence it was introduced about fifty years ago. *B. ricinifolia* is quite distinct from this, having larger bright green leaves, and it is also taller-growing and of more robust habit. *B. manicata* is also very distinct with large bright green leaves, the stems and petioles being clothed with red fringe-like appendages. The flowers, too, of the last are small individually, but are borne in large erect panicles. Are your plants named correctly? and are you sure you have not inadvertently had seeds of *B. heracleifolia* mixed with those resulting from the cross? It is a very useful and easily grown Begonia, flowering during the greater portion of the year in a stove or intermediate house. There are several varieties, differing slightly in the colour and size of the leaves.

Planting a Flower Border (Nonsuch).—There is no possibility of your carpeting your border, after the examples in the London parks, with plants that you can raise from seed; nor can you raise suitable plants from cuttings, as you do not appear to have the requisite stock to commence with. The cheapest way that we can suggest to render the border attractive would be to form it into circles and half circles, or diamonds and triangles, with lines of Golden Feather, and thus form a series of beds, which you might occupy with such plants as Stocks, Asters, *Phlox Drummondii*, dwarf *Ageratums*, *Lobelias*, and *Petunias*, with *Zinnia* beds at intervals if the plants are not too tall for the position. The Stocks can be had in separate colours or in mixture as you prefer; but we think they would be the most effective separately. You might also have beds of *Saponaria calabrica*, dwarf blue *Convolvulus*, and scarlet *Nasturtium* (*Tropæolum*) King of Tom Thumbs. These annuals would contrast with the yellow, and in good soil continue long in flower. A selection from the above would be suitable for your beds also. There is no such cheap work devoted to carpet bedding as you appear to require. Mr. Graham of Hampton Court publishes a manual of the bedding there, the price of which you could have on application to him, and there are several small designs in Mr. Cannell's "Floral Guide." The "Parks and Gardens of London," published at this office, price 5s., treats more fully on carpet bedding and raising the plants than any work with which we are acquainted. If the seeds of the *Ficus* are good you can raise plants in the manner you suggest.

Raising Cyclamens (Vero).—Unless you have a suitable house, such as a rather cool stove, for growing the plants without check through the winter, it would be better to sow the seed now than to wait until July. Sow in heat as you propose, and grow the plants in a house or frame having a minimum temperature of 60° and a moist genial atmosphere. Do not dry them in the autumn, but keep them steadily growing, and with good culture you will have attractive, if rather small, plants next spring. Sow the seed as you would sow Balsam seed, covering with its own thickness of soil, and if this is kept constantly moist young plants will appear, whichever "way uppermost" the seed happens to lie. Mr. Bardney, in an excellent article on the culture of these plants, which you will do well to read, gives the following instructions for sowing—"Seed pans or 6-inch pots should be employed, well drained, and nearly filled with a light compost of loam, leaf soil, and sand. The seed should be covered with sandy peat and leaf soil mixed. The soil must be well watered, and covered with a square of glass until germination takes place, and the pots be placed in heat. New seed is preferable, as it soon germinates, but old seed takes a much longer time. When the seedlings appear the glass must be tilted, exposing the young plants gradually to more light." Mr. Bardney advocates sowing in October, but if he omitted sowing then, he would sow now rather than lose more time by waiting until the autumn. The article referred to was published in our issue of November 3rd, 1881, and the number containing it can, if desired, be had from this office post free for 3d. You will also find a practical article on Cyclamens in our Greenhouse Manual, price 9d., post free 10d.

Packing Cut Flowers (W. E. B.).—We cannot answer your question more usefully than by citing from an article published in our columns two years ago. "Although," writes Mr. Iggulden, "we are within comparatively easy distance of London hamper or boxes of fruit, flowers, or vegetables started from here at 7 A.M. seldom arrive at their destination before 6 P.M. This is owing to our being on the eastern side, and with a railway terminus several miles from the west end of London; it will therefore be seen that we are worse

situated than are others who may be a hundred miles and upwards from the metropolis. In my case the packages are travelling about London in the vans of the Parcels' Delivery Company several hours during the hottest part of the day, to the injury of the contents unless well packed. Vegetables are commonly packed in Spinach, and having frequently observed how fresh they turn out when so packed I last season determined to try its effect on cut flowers, and so well did it answer that I was requested to continue its use. *Stephanotis* and *Roses* are flowers much in request. The former and similarly delicate flowers I was accustomed to pack carefully in cotton wool, and the latter closely in thin layers in common with other flowers. In neither instance did they arrive at their destination in good condition, invariably flagging badly, and almost irrecoverably. The cotton wool, although it prevents bruising, really absorbs moisture from the flowers; but not so the succulent Spinach leaves, as the flowers are taken out of the packages apparently as fresh as when gathered. A leaf is wrapped round each Rose, and also each bunch of *Stephanotis*, a smaller leaf being placed among the pips; and the other flowers are mostly laid on Spinach, and the rows divided by it. Shallow boxes are used for packing, and I find it a good plan to cut the flowers and place them in pans of water on the previous night, as they then absorb sufficient moisture to compensate for the loss by bleeding. To keep up a supply of Spinach during hot weather frequent small sowings are made on a north and rather rich border." The flowers must be placed in the boxes so closely that they cannot be displaced in transit, and they should be cut before they are expanded. Many flowers are sent to London in boxes about 18 inches long, 9 inches wide, and 5 inches deep, but others more fragile are packed in trays 2 inches deep, several of these fitting in a large box; but more depends on the care of the packer than the size of the receptacles employed for the flowers.

Paraffin as an Insecticide (H. N.).—It is quite true that many of our correspondents have recommended the use of paraffin (petroleum) as an insect-killer, and one at least has adduced evidence of its use as a weed-eradicator; but it is equally true that it has been frequently stated that the oil will not mix with water, hence such advice as the following, that has in substance been given in almost every article that has been published. "The oil and water do not mix together well, but if two or three squirts with a syringe are made into the vessel containing the mixture, and then immediately one syringe of oil on to the plant, and afterwards alternately squirting one into the vessel and one on to the plant, it will be sufficiently mixed for all practical purposes." Your remark that "soap in the water makes the matter worse" we can only comprehend on the supposition that the water in your district is extremely hard, and the addition of soda is needed. Try the following mode of mixing which has been adopted with success and is recommended by a practical gardener in these terms—"I have used paraffin for five or six years for Melons, Cucumbers, and plants generally as follows for summer use, or when plants are growing. For making four gallons I use a small thumb pot full of paraffin, a quarter of a pound of soft soap, and a piece of washing soda the size of a walnut; the soda softens and causes the whole to mix thoroughly. I first put the soap and soda into the water-can, and pour about one gallon of boiling water upon it, stir the whole until thoroughly mixed, then add the paraffin, stir the whole again, then add sufficient rain or soft water to make four gallons, and syringe the plants at once."

Pear Blossom (Idem).—We cannot account for the Pears on walls not producing blossom buds without knowing something about the trees. If they were equally floriferous, and the varieties were the same, the blossom of those on walls not having a north or very cold aspect would be as early as standards in the open garden.

Planting Potatoes (A. Boyle).—In all probability you will not only have a fair but a heavy crop of Potatoes from a recently broken-up pasture, the soil being strong loam, and we do not advise you to apply any manure at the time of planting.

Names of Plants (A. Death).—1, *Pteris longifolia*; 2, *Nephrodium Filix-mas cristatum*; 3, *Dendrobium nobile*; 4, *Eria lanata*. (R. P. B.).—The *Phalænopsis* is extremely fine, the colour being rich. It is a good variety of *P. Schilleriana*. The *Hellebore* appears on comparison in a large collection to be a fine seedling form of *H. purpurascens*, but we do not know one exactly like it. (Sussex).—*Begonia heracleifolia*. (H. C.).—1, *Echeveria secunda glauca*; 2, *Sempervivum globiferum*; 4, *Sempervivum montanum*; 3 and 5, *Sempervivum calcarum*. The former is the true type, the latter is a chance variation. (W. X.).—*Triteleia uniflora*. (R. Smith, Bedford).—1, *Dendrobium nobile*; 2, *Dendrobium thyrsiflorum*; 3, *Bauera rubioides*; 4, *Acacia verticillata*; 5, *Acacia armata*; 6, *Primula rosea*. (W. X., Kent).—1, *Mesembryanthemum cordifolium variegatum*; 2, *Sedum carneum*; 3, *Sempervivum globiferum*.

COVENT GARDEN MARKET.—MARCH 22.

PRICES remain substantially the same as last week, and there is as yet no alteration in the supplies; these, however, will be affected if the cold weather continues.

FRUIT.							
		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	0 to 6	0	Lemons.....	½ case	12 0 to 16 0
Apricots.....	doz.	0	0	0	Melons.....	each	0 0 0 0
Cherries.....	½ lb.	0	0	0	Nectarines....	dozen	0 0 0 0
Chestnuts.....	bushel	16	0	0	Oranges.....	½ 100	4 0 6 0
Currants, Black..	½ sieve	0	0	0	Peaches.....	dozen	0 0 0 0
" Red.....	½ sieve	0	0	0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0	0	0	dessert.....	dozen	0 0 0 0
Filberts.....	½ lb.	0	0	0	Pine Apples....	½ lb	1 6 2 0
Cobs.....	½ 100 lb.	50	0	60	Strawberries...	per oz.	0 6 0 9
Gooseberries....	½ sieve	0	0	0	Walnuts.....	bushel	7 0 8 0
Grapes.....	½ lb	6	0	12 0			

VEGETABLES.							
		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	9	0	10 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ 100	2	0	2 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1	0	2 0	" pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0	9	1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	1	3	1 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0	6	1 0	Potatoes.....	bushel	2 6 3 6
Carrots.....	bunch	0	4	0 6	" Kidney.....	bushel	3 0 3 0
Capsicums.....	½ 100	1	6	2 0	Radishes....	doz. bunches	1 0 0 6
Cauliflowers.....	dozen	1	0	3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1	6	2 0	Salsafy.....	bundle	1 0 0 0
Coleworts....doz.	bunches	2	0	4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	0	9	1 0	Seakale.....	basket	1 0 1 6
Endive.....	dozen	1	0	2 0	Shallots.....	½ lb.	0 3 0 0
Fennel.....	bunch	0	3	0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	½ lb.	0	6	0 0	Tomatoes.....	½ lb.	1 0 2 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

CROSS-BREEDING HORSES.

(Continued from page 226.)

ASSUMING that cross-breeding to be successful should be undertaken with a distinct and defined object; we, therefore, assign the highest praise and the first rank to those who maintain intact the purity of our best established breeds, because it is from these alone that we can obtain the best animals for cross-breeding. An opinion is very commonly entertained that there are only two breeds of horses in this country, ponies excepted—viz., the thoroughbred and the heavy cart horse, all the rest being but modifications of these races in various degrees. It is, however, probable that long before either of these extremes were known among us there existed a native breed of a very useful kind, pure examples of which are now scarcely to be met with. The pack horse, with his drooping hind quarters, good shoulders, strong fore legs, and sure action, existed in England, we have good reason to believe, for centuries before the Barb and Arab were imported for the chase or the racecourse by the Stuarts, or the introduction of carriages had led to the use of Flanders mares brought from the neighbouring continent. These heavy horses with their high action, slow, but sure and staunch, were naturally much prized for helping the ponderous coach out of deep ruts of the high roads which formerly prevailed in most parts of the kingdom. We find that there are but few specimens remaining of the pure pack-horse breed, and perhaps we may say we have only the cross with some of the old blood left to us. These, however, have been comparatively neglected and overlooked by agricultural societies; and consequently, whilst the mares have for a while proved valuable for breeding half-bred hunters with the thoroughbred horse, the males have become useless.

This original breed, or ancient race, has no doubt been modified considerably in size according to the fertility of the soil on which it might have been raised. Sometimes it has developed into the upstanding harness horse, and at others dwindling down to the plain but useful Galloway or cob horse, as seen in many remote districts, and particularly in the little horses used in the Irish cars—the Welsh pony and the Clydesdale cart horse. The latter enlarged by rich pasturage and probably a cross also, will no doubt represent the opposite extremes of this same breed. In less civilised ages the most useful horse was that which could most readily be adapted to all purposes. We see no good reason why, even in modern times, the more ancient breed, equally pure and more serviceable than the blood horse or dray horse, should be altogether neglected, not only by our sporting men, but by the patrons of the agricultural societies, particularly since magnificent hunters have been the result of the cross between the thoroughbred horse and the old pack-horse mare. Many years ago we had a saddle horse which we rode for some years. He was low in his hind-quarters, but with capital shoulder and good action. The day was never too long for him, and he was very fast and sure-footed; but he would not go in harness, being of a nervous temperament. This animal was no doubt of the pack-horse blood, but probably bred from a dam of nervous temper.

We have previously made slight allusion to the contour of the pack horse, but in order to thoroughly estimate his worth for cross-breeding we will describe the points which he possessed. The prevailing colours of the breed were bay and brown, which

with black legs denoted hardy constitution, at least so far as colour can influence the constitution. Among the chief peculiarities were the flat fore leg with its well-developed back sinews, the sound foot, and capital shoulders and fore hand. The neck muscular, but not thick and heavy, was fairly arched, and the head, of moderate size, was well set on. This form was accompanied, as we might expect, with safe action in the walk and trot; the horse rarely stumbled, and only fell from exhaustion or overwork. Whilst the heavier and coarser specimens of this breed were capable of carrying a 5-cwt. load throughout a long journey, the lighter and more active were used as the ordinary saddle horse, or even the hunter of the period. Many of these animals were extraordinary trotters, and as trotters are generally good walkers the quality was greatly prized and encouraged; and thus a race of trotters was bred, which no doubt were the ancestors of the celebrated American trotting horses, such as the "Tom Thumbs" of later days. Although these horses were deep in the chest and ribs the hind quarters were comparatively inferior, the hips often ugly, the tail set on low, and sometimes the hocks were rather too straight. The celebrated trotting horses of Norfolk were evidently not true pack horses, although no doubt allied to them, for they, it is said, had some Spanish blood, and probably of the thoroughbred also.

Let us now take a review of the peculiarities of the thoroughbred horse in order that we may be enabled to estimate his value for crossing purposes, and produce the effect in mating with other breeds which we are desirous of obtaining. Racing no doubt was known in this country long before, but received a fresh impetus from the introduction of the Barb, the Arabian, and the Turk. The modern blood horse is, however, of much greater average size than the Arab or the Barb either of the present or the past, and some doubt exists whether this is entirely due to selection or in part to early crossing with the native mare. This foreign influence, however, was not derived from one strain only, for the pedigree of the celebrated "Eclipse" himself shows, that besides his descent from the Darby Arabian and Godolphin Barb he had five or six crosses of the Turk; and it is strongly surmised that the improved native horse, made up of the ancient British and Spanish and the Barb, is entitled to some share in the honours of his parentage. Be this as it may, the present English thoroughbred horse has proved himself faster than any of the breeds from which he is sprung, which circumstance is most important, as it most forcibly exhibits the value of cross-breeding when it is judiciously carried out with a well-defined object in view. Still it can be done only to the best advantage by mating animals of certain known pedigree or long-existent race.

Many doubts have been cast of late on the powers of the thoroughbred English horse as to his endurance in comparison with the smaller horse of some fifty or sixty years ago. The thoroughbred English horse, in common with the Arabian, possesses no doubt more muscular vigour as well as energy than any other kind of horse. It is to this circumstance that we attribute the fact that racing horses of the present can be brought out with safety on the turf at the early age of two years, and many of our best and most valued strains have been highly successful in their engagements at two years of age, and lived for some years as the most valuable racers of the period, and have afterwards proved as "stud horses" the basis of some of the most highly prized strains in the kingdom. From time to time it has been suggested, with the view of improving our breed of thoroughbred horses, and particularly as to their staying qualities, to resort again to the original or parent breeds; but not to mention the ill-success of such attempts when made, it must be evident that the tendency of this cross would be to diminish the size and to shorten the stride, and probably to render the action too high; we cannot, therefore, expect breeders for the turf to adopt the advice. At the same time it must be acknowledged that the Arab has been more successful with half-bred and under-bred mares than the third-class cast-off racer, inasmuch as with undeniable bottom there has been a harder constitution, better fore legs, and higher action from this cross. As we can recommend these observations as sound in practice, no better encouragement for those who are desiring to breed hunters and hack horses can be given than is here portrayed as the result of the Arab cross when the sire is of the pure breed and pedigree; for it is now well ascertained where the dam has been of sufficient bone and size that many good hunters and handsome harness horses have been so bred. Still more frequently this cross has been successful in producing capital ponies and Galloways, as we shall show when we come to the subject of breeding ponies further on. Arabs have, in proportion to their size and weight, larger bone and sinew than the majority of our thoroughbreds, and we have often observed their beneficial influence in the second and third generation both with hunters and horses for other purposes.

In cross-breeding we should take into account the delicacy of constitution of the thoroughbred racer. The difference as respects hardness is strikingly shown between the foal of the cart mare and the thoroughbred; for whilst the former is strong, sturdy, and fleshy, the latter comparatively puny, thin, and susceptible of the least cold, the former, by means of the dam's milk, can be kept in first-rate order, whilst the latter requires artificial assistance as soon as it can be rendered. These render it so expensive to rear the blood colt, and this distinction prevails throughout life, and extends in a lesser degree to the half-bred as compared with the cart horse. The thoroughbred has certain other faults. As a rule he is slighter and weaker in the fore legs, he goes closer the ground, is often a bad walker and an indifferent trotter, and is more liable to stumble and fall than the coarse-bred horse. How can it be otherwise? He is bred to win a race from parents which have been winners. The elevation and round action that makes a good hack or charger would shorten his stride and impair his chances; although, if he has good legs and sufficient size and substance, the very fact of his being too slow for racing ought to be rather a recommendation as a hunting stallion than otherwise. Yet, who would give him credit for endurance, or stoutness as it is called in racing phraseology, if he had never been fortunate enough to win a race? or what chance would he have for a prize at our agricultural shows when judged by those who can recognise at a glance a Derby favourite or the winner of the St. Leger?

The improvement effected in the size, and probably in the speed of the thoroughbred horse, is no doubt very great, and every year produces some wonderful examples of first-class winners. Yet we may venture to say, that nowhere else throughout nature, where the same care and vigilance is bestowed on the rearing of animals, are the blanks so many and the prizes so few. To justify this broad assertion let us endeavour to trace the career of the, say, fifteen hundred and upwards thoroughbred foals which are annually dropped. The majority are begotten by first-class horses, which have either been great winners before they have themselves broken down, or, better still, have proved themselves the sires of great winners as well as winners themselves. Both care and expense are lavishly bestowed on the fifty or sixty sires, the two thousand brood mares, and also on the foals themselves. It is an error to suppose that either the mare or the foal is pampered and enervated by undue care. The well-kept paddock affords every facility for taking exercise, and those who have witnessed the incessant and sprightly gambols of the young animal will admit that the muscles and sinews of the thoroughbred foal are called into play much more than those of the cart horse. Yet with all this care what becomes of these costly toys? The greater number go into training at two years old, no small percentage having previously disappeared from disease or accident, and many succumb to the numerous maladies and mishaps which occur in the training stable. After this ordeal the trial begins, and then some are condemned as too slow, and others as too small; some are mercifully shot out of the way, others submitted to the auctioneer's hammer, and many a colt which has cost £200 to rear is sold for less than £10. We have quoted to some extent from an essay in the Journal of the Royal Agricultural Society of England by Mr. W. C. Spooner, M.R.V.C.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Up to this time the weather has been very favourable for the work of the farm with but little or no impediment, for when we had a few showers it was suitable for rolling the pastures and parklands as well as Clover where intended to be cut for hay. Great breadths of Lent corn, both Barley and Oats, have been sown in capital season, and in many fields the corn is above ground and looks strong and healthy. Potatoes now should all be planted, the sooner the better, either of the early or late varieties. Some farmers are hesitating whether to plant many Potatoes owing to the price being so low; still, if the crop is large it pays better than any other roots if sold, especially, too, as it is one of the best fallow crops, and prepares the land well for cereals such as Wheat and Barley. We must not forget, where the home farm is well situated for the sale of vegetables, such as Cabbages, Broccoli, Carrots, Cauliflowers, &c., that they pay well for cultivation when they can be delivered in towns by the grower, but not to consign them to salesmen in London. Mangolds in heap or in store should now be looked after, for in case they grow out they sometimes partially decay when the weather becomes warm. We therefore make it a rule to look over the heaps or bulk, and make them up again after removing any decayed or decaying roots and rethatch with fresh well-wetted straw. This will keep the roots cool and in good condition for the remainder of the season. The time of year is now suitable for setting out draining; for when the fallows show white as we have seen them to-day, every damp spot is shown plainly, the dry land being white and the wet ground dark-coloured; and if it is properly set out and marked the

drainage work may commence without further delay, for the land is generally in a workable state at present.

Both steam power and horse power should now be made available for cleaning and preparing the land for root crops—Mangolds first, then Carrots, afterwards Swedish and hybrid Turnips. We like to apply artificial manures for all these unless the yard dung should have been laid on in the autumn or winter previously, because at this busy period no dung-carting ought to be done, the labour on the fallows being so valuable, for in case of change of weather it may become either too wet or too dry; therefore the preparation ought never to be delayed when it is possible to effectually carry out the work. We hope to sow our Mangold seed about the first week in April, for in the two past seasons we were very fortunate, and obtained a full and regular plant; but in both cases if a delay of ten days had been permitted the land would have become too dry.

Hand Labour.—This is employed in Potato preparing and planting both by men and women, and in case of a showery day work should always be ready for the men and women also under cover. The breaking, screening, and preparing of guano, ashes, &c., may be done in the manure house, for every farm ought to have a house for the storing of manures, with space sufficient for work under cover. The women, too, will now be employed when ploughing-in Cabbage and other plants is going on; for if the plants are carefully laid by them along the side of the furrow, and only one horse is used in ploughing which shall walk out of the furrow so as not to disturb the plants, the ploughing-in may be completed in good form. A man, however, should follow with the hoe and release any plants which may have been buried too deeply, and draw over a little earth upon those roots which have not been sufficiently covered. The grass on the borders and banks of the fields is now, on the warm soils like sand, gravel, and limestone, very forward, and especially where the wild Cow Parsley prevails. The grass will when cut not only furnish a clean and neat border to the fences, but the crop, which may be cut twice a year, will furnish valuable feeding materials for dairy cows and breeding sows. The former are very fond of such food, and it encourages the milk greatly. We know a farmer who feeds twenty cows chiefly upon such food during the summer months, and giving therewith 4 lbs. of undecorticated cotton cake daily to each cow. This is preferred to the decorticated cotton cake, because it prevents any tendency to diarrhoea when the animals are eating rough grass, including various hedgeweeds. It is not suggested that this food of border grass is fit for cows in the butter-making dairy, but it answers admirably when the milk is sold, or calves suckled and fattened for veal. It is found also that the various young shoots of hedgewood, except Whitethorns, &c., are eaten readily by both cows and pigs; any portion remaining is also well adapted to be trodden down with the straw litter and adding to the dung heap.

Live Stock.—Stock is doing well, almost beyond precedent, for food of every kind, including park and pasture grass, is most abundant considering the time of year. The Trifolium and other green fodder crops like Rye and Italian Rye Grass, will be ready for cutting and soiling cattle in a few days, and are at present in a gross and luxuriant condition for folding off for sheep. Most districts are now free from the foot rot in sheep, which is a very important point, for in past seasons we know large flocks of sheep have lost to their owner, in consequence of lameness, an amount equal to the expenditure in cake feeding, but more especially in the case of large flocks, for when once the lameness is allowed to make progress, it is a work of great cost and difficulty to eradicate and keep it under even with the most vigilant attention. Dairy cows will now find plenty of grass, in the water meadows especially; but they should not be allowed to lie out at night until the first week in May, for we may yet get night frosts, which will frequently injure cow stock, especially heifers.

POULTRY AND PIGEONS

POULTRY NOTES.

THE poultry cause célèbre is decided, as our readers will have learnt from our report of the trial. We are glad to feel that we may bury the unhappy controversy for good and all, but we should have been still more glad if it had not been disinterred in the Court of Queen's Bench. Why it lay in abeyance two years and was then brought to the light of Westminster Hall we know not, and it is idle now to speculate. We will not return to it, or again discuss the merits of the case. There are, however, lessons to be learnt and warnings to be taken by simple laymen unlearned in the strange subtleties of the law from such a trial which we may without impropriety point out, lest unhappily some such dispute should again arise.

1. As to the publication of a libel. We have generally, and not unnaturally, a vague idea that a statement to be considered technically as published must have been published by, or at least with, the sanction of its writer. In this case, however, nothing of the kind took place. The writer did not publish the libel or sanction its

publication, neither did the gentleman to whom it was addressed, nor the committee before which he laid it privately. The person libelled, or rather his aiders and abettors, seem to have thought themselves lucky to get a copy of the libel, and they alone circulated it; yet it was taken as a published libel. An acrimonious controversialist may well paraphrase the words of the prophet of Uz and say, "Oh that mine enemy had written a letter!"

2, The question of privilege. On this point, which is, of course, much bound up with that of the publication of a libel, we must confess to having had ideas which also have been rudely dispelled. Privilege, it seems, cannot be pleaded if it be proved that malice animated the writer. It logically follows that if A should write to his intimate friend B something to the disparagement of C, to whom it could be proved that he before owed a grudge, and should have the misfortune to drop his letter into the gutter instead of putting it into the letter box, he would, were the letter to be picked up and published, have no power of pleading that it was a privileged communication.

We make no comments on the law or its interpretation; we simply draw logical deductions, and hold out warnings to disappointed exhibitors of poultry. The columns of some of our contemporaries have often teemed with letters from unsuccessful exhibitors which might have been easily construed as the offspring of a malicious animus, which would have prevented all after pleading of privilege should their writers have got into some such hobble.

One more point must not be lost sight of—an appreciative jury may estimate the damage done by rash writing to the character of a libelled person even more highly than he estimates it himself. In the case lately tried the plaintiff's counsel opened by asking no damages at all, yet the jury awarded him £50. The moral is, if our birds will not always agree in their nests or on their runs we must as fanciers be very careful how we take up the cudgels for our respective favourites, even though they be but broody hens, or their, as far as our experience goes, somewhat less trustworthy substitutes—incubators.

THROUGH the aforesaid trial it incidentally, but very clearly, transpired that all such contests of incubators as were held at Hemel Hempstead, however laudable the motives of those who start them, are far from satisfactory. Surely the fancying, or rather incubating, public can judge for itself which machine answers best, and the public is not in these days so very backward in making its experience known. All experience of life shows us the extreme unwisdom of arguing from single instances to general rules. Such a contest is practically a single instance, for the mistake of one hour, or once mismanaging a regulator, may affect the whole result. We have known the first trial of an incubator an utter failure, the second a perfect success, not from any great change in its management, but simply because the manager had by a little experience acquired the knack of regulation.

["Publication" for the purposes of the law of libel is perfectly distinct in its meaning from the same word in its ordinary acceptance. To publish a libel it is only necessary to write it and give it or send it to any person or persons. No formal printing or making public of a libellous statement is required to satisfy the provisions of the law. Morally, the injury done may lie at the door of the person who makes the libel public; legally, the writer has to bear the consequences.]

WE have before us the schedule of a show of poultry and Pigeons to be held at Lincoln on April 27th, 28th, and 29th under Poultry Club rules. The classification and prizes are very fair.

MESSRS. BOULTON & PAUL of Norwich have sent us a much enlarged and most attractive illustrated catalogue of their appliances for poultry, Pigeons, and pheasants. Some of the houses and aviaries are really beautifully planned. We especially admire a Pigeon cote, the internal fittings of which are arranged on the model of those recommended in Fulton's "Book of Pigeons."—C.

A CURIOUS EGG.

AT the foot of a short article on the above subject in last week's issue, you note that occurrences similar to the one described denote either that the egg-producing organs are out of order, or that the hen is about to stop laying. I admit the truth of this opinion with reference to the instances you give, but it certainly does not apply to the "curious egg" I have described. In the first place, there is not the slightest evidence to infer that the egg-producing organs of my hen are out of order; and secondly, I may state that the hen has not stopped laying, nor does she give any signs of doing so. In my case a perfect egg was enclosed in another. This in-

dicates that there was not any diminution in the number of yolks discharged from the ovary. In other abnormal enclosures there is an absence of yolk, showing deficient action of the ovary, although the functions of the various parts of the oviduct may be carried on as usual.—T. FREDERICK PEARSE, M.D.

[Our correspondent, as a medical man, probably draws a somewhat fine distinction between the ovary and the oviduct, both of which we characterised as "egg-producing organs." In the case he records the abnormal action was, no doubt, confined to the oviduct, which did not properly perform its functions. It was in this sense we said that these cases denote that the egg-producing organs are out of order.]

LECTURES ON POULTRY MANAGEMENT.

ON Wednesday in last week Mr. W. B. Tegetmeier delivered the first of a series of lectures on poultry management in the Council-room of the Royal Horticultural Society at South Kensington. The course was originally intended, we believe, to form a principal feature in connection with an exhibition of poultry appliances to be held at South Kensington, but the exhibition has not turned out a success, and consequently the lectures are robbed of a good deal of the interest which they would have gained from the opportunities of illustration afforded by a larger exhibition.

The hour of the day at which the lectures are held (mid-day) renders them available only for the ladies. These were fairly represented, and showed great interest in the subject; but the audience was not so numerous as it doubtless would have been had greater publicity been given to the fact that the lectures were about to be delivered.

The first lecture was an extremely interesting one, and, as is usual in whatever Mr. Tegetmeier does, partook largely of the individuality of the lecturer. It was chiefly introductory.

We would suggest that should the experiment of giving public lectures on so interesting a subject be again tried, the time selected for the delivery of the lectures should be the evening, and that far more pains should be taken to give full publicity to the fact of the lectures being about to be delivered.

OUR LETTER BOX.

Drake Ailing (C. E. C.).—Press all the water from the drake's crop, holding him head downwards with one hand and exercising a gentle and even pressure with the other. You will then be able to feel if there is any obstacle in the entrance of the passage leading to the digestive organs. If there be, your only chance of saving the bird is to cut open the crop near the top, remove the obstruction, and then sew up the aperture. Make each stitch separate, and be careful to sew the crop and the outer skin perfectly distinctly from each other. If you find no obstacle, give a larger dose of castor oil (a table-spoonful) and feed on soft food, giving no water for some time. These irregularities of the digestive system are frequently merely evidences of more serious ailments.

Drench for Cows (Inquirer).—Take Epsom salts, 1 lb.; nitre, 2 ozs.; ginger and aniseed in powder, of each 1 oz.; treacle 4 ozs. Pour three pints of boiling water upon the ingredients, and give when new-milkwarm. If there is no tendency to inflammation we do not consider any drink necessary for a healthy cow.

Planting Field Cabbages (J. B. & Sons).—This essay will appear shortly in the next issue of the report of the Transactions of the Highland Society, published in Edinburgh, and may be obtained by ordering of any newsagent or bookseller.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.	March.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun. 12	Mon. 13	Tues. 14	Wed. 15	Thurs. 16	Friday 17	Satur. 18						

REMARKS.

12th.—Hazy at first, afterwards fine and bright; misty in evening.
13th.—Misty early; very fine, bright, almost cloudless day.
14th.—Rather more cloud at times, but generally fine and bright.
15th.—Hazy at first, very bright and fine afterwards.
16th.—Fine, bright, and warm; very calm.
17th.—Fine, bright, calm, and warm.
18th.—Cool foggy morning; bright warm day.

A remarkably fine rainless week, with an extremely large daily range of temperature (24°2°), the nights being colder than those of the first week in January, and the days warm and sunny.—G. J. SYMONS.



30th	TH	Royal Society at 4.30 P.M.
31st	F	
1st	S	
2nd	SUN	6th SUNDAY IN LENT. PALM SUNDAY.
3rd	M	
4th	TU	Flower Show in Manchester Town Hall.
5th	W	

AN HOUR AT KEW.

HAVING been called up to London on business, and having a few hours at my disposal, I thought my leisure time could not be more profitably employed than by a visit to Kew. In an establishment of such magnitude and so rich in plants there is always something to be learned, and knowledge can be gained with regard to both new and old plants. There are many of the latter, really useful, that were cultivated years ago, but which would have been lost had it not been for establishments like Kew. It is only in such collections that we have an opportunity of seeing many of our old favourites, and this renders a visit both interesting and useful either to the horticulturist or the botanist.

My chief object was to see what was noteworthy amongst flowering plants for conservatory decoration, as these are great favourites with my employer, and also with myself, although I have a full appreciation of the numerous handsome plants which require stove cultivation. I found the conservatory (No. 4) uncommonly bright, containing abundance not only of the ordinary plants seen in private gardens, but also of choice and pretty greenhouse plants that are not frequently met with. A few notes respecting some of the most important may prove acceptable to the readers of the Journal, first noticing a few of the hardwooded kinds.

Boronia tetrandra and *B. megastigma*, the former with white flowers, the latter with chocolate-coloured, in shape like the flowers of Lily of the Valley, are represented by several bushy plants, and their perfume renders the house quite fragrant. These plants, especially the latter, are well worth growing more extensively in private gardens. *Diosma speciosa* and *D. capitata* are useful plants, and last a long time in flower. Neat little bushes of *D. capitata*, about 18 inches high and as much in diameter, were loaded with their lilac-pink flowers, which are produced in trusses at the points of the shoots. I greatly admired the beauty of *Tremandra hirsuta*; quite young plants in large and small 48-size pots were laden with flowers to such an extent as to weigh the shoots down. This is indeed a charming plant, exceedingly useful, and easily grown. Several of the plants bore shoots more than a foot long, clothed with delicate pink flowers from base to point. Some of the shoots grow rather weak, but when supported with neat stakes very handsome specimens can be made. *Chorozema spectabilis*, *C. splendens*, and *C. cordata*, with their pretty little Pea-shaped flowers, are very useful and showy. They are too well known to need much comment. Several healthy specimens are flowering most profusely. Small plants of *Genetyllis tuli-*

pifera when well grown like these at Kew are also very showy, and, though less imposing than the large specimens seen at exhibitions, they are more useful.

Grevillea rosmarinifolia, *G. elegans*, *G. erieifolia*, and the beautiful *G. Thelemanniana*, which is certainly the best of the genus, are all flowering freely. *Ericas* and *Epaerises* also contribute to the display. *Epaeris microphylla* has both small foliage and flowers. The latter are plentifully produced, and are pure white; this is a desirable plant, and lasts long in perfection. *E. purpurascens* is closely related to the latter with regard to flower, but the foliage assumes the character of the large-flowering species. *E. onosmaefolia*, *E. odorata alba*, *E. splendens*, and several others are also in bloom. *Eriostemon cuspidatum* is a well-known plant, and should find a place in every garden. *E. scaber* has smaller leaves and flowers than the last-named species, but I think is more floriferous. *Podalyria styraeifolia* has been finely in flower, and indeed looks very handsome now; it is a plant now seldom seen. The beautiful pink and white Pea-shaped flowers, which are nearly 1½ inch across, are very conspicuous among the surrounding dark green foliage. *Acacias* are represented by half a dozen species, mostly well known to horticulturists, and all without exception are worth growing. The following all flower in a young state—*A. armata*, *A. Drummondii*, *A. lineata*, *A. longifolia*, *A. diffusa*, and *A. verticillata*. *Cytisus canariensis* and *C. racemosus* are represented both by large and small plants; their beautiful fragrant canary-yellow flowers are always welcome, and last long in perfection. *Gnidia carinata*, *Coleonema alba*, and *Eutaxia myrtifolia* are also in flower. Ghent Azaleas are in strong force in various shades of colour; the flowers are extremely large and showy. There are also many forms of the Indian Azalea, and one of the most useful is *Souvenir de Prince Albert*; this is a valuable variety, and will always be appreciated. Forced *Rhododendrons* make a brilliant display, and when tastefully arranged amongst other plants they are very effective. *Forsythia viridissima* is quite a novelty with its beautiful pendulous yellow flowers. This plant should be more extensively cultivated for early forcing. Lilacs, *Prunus*, and *Pyrus* are alike useful and ornamental, and *Pyrus floribunda* I consider one of the most lovely plants in the house. They do not last so long in flower, perhaps, as many other forced plants, but they are really very showy. Many of the *Camellias* were past their best, but still there is a good display. *C. reticulata* is a good old species, and deserves a little more attention. I consider that this valuable species should find a place in every collection; quite a small plant at Kew was producing ten large showy flowers.

There are not many climbing plants in flower now; however, there are two or three that are worth noting, and one of the most conspicuous is the Trumpet Honeysuckle, *Lonicera sempervirens*. *Kennedya australis* is loaded with its dark purple flowers. The individual flowers are not large, but are very pretty, and compare very favourably with its larger companion *K. rubicunda*, which has large coral-coloured flowers. *Eupatoriums* are well grown at Kew. *E. riparium* is grown in quantity, and they look very well arranged amongst other plants of brighter colours. The flowers are pure white, and are useful for cutting. *E. ianthinum* is a useful species with its large Ageratum-like flowers, being quite conspicuous, and *E. Wendlandii* is also flowering freely. *Agathæa cælestis*, or Blue Marguerite, is a little gem, and deserves to be more ex-

tensively cultivated ; it is always in flower, even in the middle of winter.

The above are only a few of the many good plants that may be seen in flower at Kew, as the usual flowers that are to be seen at this season are abundantly represented by healthy specimens, such as Primulas, Cinerarias, Mignonette, Orobus vernus (forced), Cyclamens, double and single Hyacinths, double and single Tulips, Lachenalia tricolor, Scilla siberica, Jonquils, Tritoleia uniflora, very pretty with its star-shaped flowers ; Deutzias, Aucubas, Salvias, Chrysanthemum frutescens, Libonia floribunda and L. Rheedii, Strobilanthes isophylla, Lily of the Valley, Sweet Scabious, Veltheimia viridifolia, the flowers of which are produced like Tritoma ; Polyanthus and pot Roses. It is an easy matter with a good supply of these to keep a house bright through the winter months, but not so easy to keep such a great variety of plants as are grown at Kew always healthy and attractive in their season, and the condition of those noted, with thousands more not mentioned, are equally worthy of the establishment and creditable to the cultivators.

The brief time at my disposal unfortunately precluded anything more than a very cursory view of the other departments ; but in all alike I observed considerable improvement since a former visit some years ago, the condition of the plants in the new range and the Palm house being especially satisfactory, while the temperate house is evidently as well managed as could be desired.—COUNTRY VISITOR.

VINES AT LONGLEAT.

(Continued from page 211.)

HAVING gone through the historical part of my essay, taking my readers "behind the scenes," and showing them as plainly as possible every blunder I have made or at least every one I can at present think of, and telling them how the difficulties brought on by such blunders have been overcome, and thus relieving myself of the feeling that the tale of these Vines as told by other people of late has been all on one side, and that a little something in the shape of an antidote was necessary, I pass on to more minute details of cultivation.

TEMPERATURES.

Much divergence of opinion exists on this subject among Grape-growers. Some maintain that fire heat is altogether unnecessary for the production of good fruit. Others say that fruit cannot be properly finished without a minimum temperature of at least 70°. As usual in the case of controverted questions, a medium between the two will be found to be correct. Enthusiasts on each side of an argument, although they always fail to satisfy themselves on any point, are no doubt useful in this respect that they never fail to convince thoughtful outsiders that both are wrong, and it behoves such people as are capable of doing it to weed out all superfluous verbiage, get at the points made by each side, balance them, and work out the proofs for themselves. But there is one thing indispensable before a person can constitute himself a judge of such points, and that is, he must at least know what good quality is, and be able to discern it in other people's products as well as he can in those of his own.

There are many who constitute themselves judges of Grapes who do not really know the high state of excellence to which this fruit has been brought within the last few years by our best growers. Such persons may have attended some of our largest shows and seen good fruit there, but it must be remembered that all the fruit they saw there was in good company, and it is impossible to compare it with the fruit we so often hear

about at such times in something like the following terms, "Oh, I could have beaten that if I had brought mine." Many an exhibitor could tell a tale of how the estimate of his own fruit fell in his imagination when once it found its way on to the exhibition table. It is not enough, then, that people should grow Grapes at home sufficiently good to please themselves (I have not even attained that yet), and suppose that what satisfies them would satisfy everybody else, and then describe their mode of cultivation as the proper one to follow.

I will now attempt to describe some of the qualities a house of Grapes should possess before it can be called good. We will suppose that Grapes are of the first consequence, that the house is well adapted in every respect to their cultivation, and that, whatever else may be in it, nothing takes precedence of the Grapes as regards the attention of the cultivator. Where the management has to be such that it will give the best all-round accommodation to a great variety of subjects the case is entirely different, and fruit of the quality seen at exhibitions cannot be expected, but I am supposing now that the well-being of the Grapes alone has to be considered. We will suppose it is a house of Hamburgs, as that sort is most generally known and, next to Muscats, the worst cultivated. The bunches should be regularly disposed, at least so far as there is any wood older than that of the current year's growth. They should be well shaped, and none of them less than a pound in weight (2 lbs. is a better minimum standard). The berries should nearly hide the footstalk of the bunch ; they must have strong stems to do this, weak stems always fall with the weight of the berry. The berries must be regular in size, none of them less than 3½ inches in circumference. I have seen many Hamburg berries 3¼ inches, or 1½ inch through, but I shall be satisfied as to size for the present if the average is 3½ inches, one berry of which will balance a half-ounce weight or nearly so. They must be blue-black after the manner of Sloes, and with a similar bloom to that handsome fruit, no tinge of red whatever showing unless the berries are held up to a bright light, when of course, the skin being somewhat transparent, the colour of the flesh will show, but there must be no tinge of red on the skin.

When all the signs I have enumerated present themselves in a house of Hamburgs I would not ask any further questions as to quality, because, although those pointed out will appear before the fruit is sweet, both sweetness and flavour are sure to follow. If anyone has grown Hamburg Grapes without fire heat possessing all the points I have named, he has a right to say that good Grapes can be grown in his district in an unheated house, but even then it is not proved that they can be so grown everywhere in his county, much less three or four hundred miles away. The signs I have named would not indicate perfection in the thick-skinned or winter Grapes unless they appeared as early as the end of July, for this class of Grapes is much easier to colour than Hamburgs ; but so far from being ripe when first coloured, they are not actually fully grown, and their treatment at the time of colouring and for some time afterwards makes all the difference between Grapes which will keep till May and those which will rot before the new year.

The question of temperatures for growing any particular class of plants is a more complicated one than

many people seem to imagine. It cannot be settled satisfactorily, as is attempted in some of our standard books, by merely obtaining the average temperature of any place abroad where such plants are known to thrive naturally. If we grow a plant for the first time, to know the conditions under which it thrives in its native habitat is a great help to us to start with, but there are so many local minor circumstances which cannot be imported with the plant, and the absence of which often neutralise to a great extent those conditions which are considered by cultivators to be all-important. I suspect the high temperatures which obtain in many establishments for Grape-growing came thus from a native source, for they cannot be the outcome of direct experiment, as that takes us, according to my experience, quite the other way. As high temperatures when not beneficial must do harm besides wasting fuel, the question to be settled is simply, What are the lowest temperatures in which Grapes sound in every way have been grown? Now, I have seen Hamburgs and such other Grapes as are classed with them grown very fairly without any fire heat at all, such fruit being produced as most small amateurs would be thoroughly satisfied with, but this was in favoured localities, and the Grapes were not to be kept till the new year. It is, then, possible to grow Grapes without fire heat in certain districts and in certain seasons. It was, I believe, possible to grow them thus even in such a season as 1879, but if three such seasons had followed in succession it would not have been possible to continue to produce presentable fruit in that way. Unripe wood two seasons following is sure to leave its mark, and in fruit-growing the coming year should always have a more prominent place in our minds than the present one.

It is possible that a higher minimum temperature is necessary to northern latitudes for Grape-growing than that which may be safely practised in our southern counties; and as evidence in favour of this, it is a generally accepted fact that it takes a higher temperature to start Vines into growth during winter, however well ripened the wood may be, than it does during spring or autumn. Of course during spring we should expect the natural season to have some effect, but that does not account for all the difference; and supposing it is true that they also start comparatively easy in autumn, and I believe it is, we must look for a different explanation. I believe it is to be explained in the difference between the medium temperatures of the seasons and the length of time during the day in which the temperature keeps up to or beyond the medium height. Medium temperatures are generally taken only with regard to the highest and lowest points which the thermometers touch, and without any regard to the length of time the highest or lowest temperature prevails. Now for horticultural purposes this is not sufficient, it is the length of time during which a temperature not lower than the medium prevails which rules everything. It does no more harm to a Muscat Vine in flower to experience for half an hour a temperature of 45° than it does to the man who attends it, but that is no reason for recommending a temperature of 45°. The Muscat and every other Grape demands in order to bring it to perfection a certain number of hours of a certain average temperature. If the natural maximum ranges high, then a lower minimum may (under good hands) be safely practised; and on the

contrary, when the maximum ranges low from being insufficiently assisted by natural causes, it may be necessary by artificial means to keep as high a minimum as is safe, and during daylight to make the temperature approach the medium as soon as possible, and thus artificially make up the necessary general medium which Nature denies us. I practised and recommended such a course as this during the dull wet season called the summer of 1879, and succeeded in ripening my fruit thoroughly when ripe fruit of late Grapes was scarce. If my reasoning is correct as to the different seasons it will also apply to different districts.

There is another fact which seems to be overlooked. Thermometers are generally fixed in the most favoured part of a house. Now supposing a thermometer placed in the centre of a house and 6 or 8 feet below the Vines should indicate an average minimum temperature of 70° during severe frosty weather, such as is often experienced in the north, there is no guarantee that the Vines are in that temperature. They may for aught we know experience at times a lower medium temperature than those of our friend on the Cornish coast, who boasts that he only allows a minimum of 45°; at any rate, situated as they are at some undefined position between fire and frost they cannot be so comfortable. I have when describing my trellis pointed out some of the effects of radiation, which at this point it may be advisable to the younger portion of my readers to again peruse. We must not, then, be too dogmatic in laying down rules for temperatures and other matters for everybody to follow under all circumstances. We may state truthfully our own experience in our own little sphere, and if during such statement a hint falls which is worth anything, there are doubtless many ready to act on it, for all true gardeners are ever on the lookout for a lesson regardless of the quarter whence it comes, but none of them like it forcibly crammed down their throats.

It is possible that before minimum temperatures anything like so low as those I succeed with can be practised safely in the north of Scotland, some better means must be found, by covering the roof or otherwise, of securing the desired temperature to the Vines as well as to the thermometer. We smile when *Punch's* old sexton discovers that he can by simply breathing on it raise the mercury of the newly introduced thermometer in the church to the desired point, and gleefully relates his experience to the new curate. But I am afraid many of us still put too much confidence in the thermometer without sufficiently taking into consideration the surrounding circumstances. We cannot, however, do without the thermometer, and after many experiments I have settled down to something like the following temperatures, and believe them to be suitable for the southern and western counties of England, but I am never particular to a few degrees providing there is not at any time too much fire heat used. It must be remembered that my thermometers face the north and are all shaded from the sun, being placed in boxes for the purpose, the edges of which project along each side and over the top of the instrument about a couple of inches—

FOR STARTING.	FLOWERING PERIOD.	AFTER FLOWERING.
About 55° night and day, as far as fire heat is concerned.	57° to 60° night. 68° to 70° day. 75° to 80° sun.	63° to 65° night. 70° to 73° day. 80° to 85° sun.

A lower temperature than the lowest figure given

above will do no harm occasionally if the airing is managed properly immediately before and during the rise, and a higher temperature than that given here will generally be harmless if it occurs after the ventilators are all open. My temperatures for all sorts of Grapes are the same up to the commencement of the second swelling. That Muscats want more heat than Hamburgs is only true as regards the length of season it takes to grow and ripen them. They do not require a higher temperature, but they and all the late Grapes require a moderately high temperature to be continued for a longer season.—WM. TAYLOR.

(To be continued.)

THE FUTURE OF THE ROYAL HORTICULTURAL SOCIETY.

Of the trial in the Court of Appeal (in which the judgment of Mr. Justice Fry, given on the 15th June last year in favour of the Society, was reversed) that terminated a few hours before we went to press last week we could only give a brief report, yet we were enabled to state all the grounds on which the verdict was founded. It is not unnatural that a feeling should be more or less widely entertained that the results of this trial must be calamitous to the Society, and that the order that the Gardens must be given up within four months should involve its utter and speedy collapse. It is on this assumption that some not over-elegant comments have appeared in one or two of the daily papers, in which the writers would appear to have indulged in the grim pleasure of giving what seems like the familiar "parting kick." It is under these circumstances desirable to state that the verdict of the Master of the Rolls will not necessarily have any such untoward result as that above indicated; but, on the contrary, it is by no means improbable that the Society will be strengthened rather than weakened by what some assume is the termination of a long-pending dispute.

So far as we understand the case there has been no real quarrel between the Commissioners and the Society—indeed one of them, Lord Aberdare, is its President; but the peculiar position of the debenture-holders, who have invested £50,000 in the Gardens, left the Council of the Society no honourable alternative than to resist the claims of the Commissioners for possession of the Gardens so long as the claims of the debenture-holders were unsettled. Even if the ruling of Mr. Justice Fry had been sustained, it is not at all certain that it would in the end have proved so advantageous to the Society as the late adverse verdict of the higher Court may prove to be. By the first ruling the Commissioners and the Society were jointly responsible to the debenture-holders for the sum named; by the latter verdict neither party is responsible. This is undoubtedly unfortunate for those who have invested their money in the property; but the moment it was decided by the Master of the Rolls that the case was one as between landlord and tenant the forfeiture in question was a necessary corollary.

The former verdict appears to us to have been founded on equity, the latter on law. The result is, that while the Commissioners are undoubtedly great gainers, the Society has been relieved of a formidable debenture debt. If the claims of the former arising from the action can be met—that is, if they are pressed, it cannot be supposed that the Commissioners will now, as landlords, be less willing than before to enter into an arrangement with the Society on reasonable terms, so that the objects for which it was established can be efficiently carried out. Before the decision of the questions at issue negotiations were practically impossible, whereas now the natural impediments are removed. With Commissioners not unfriendly, and a Council harmonious and above all things devoted to the advancement of practical and scientific horticulture, we are not without hope that the present crisis will be temporary, and that the cloud, however heavy, is but the precursor of a brighter day for the Royal Horticultural Society.

ENGLISH v. FOREIGN VEGETABLES.

WE promised last week to submit for the entertainment or amusement of our readers a few paragraphs from an article entitled "No Vegetables," which appeared in the *Pall Mall Gazette*. It is rare indeed that a writer in such a charmingly innocent manner is so successful in reversing the facts of the case. It is

because of their novelty in this respect that we make the following citations—

"The reappearance upon our tables of Seakale and Asparagus—our only two eatable greenstuffs—naturally raises once more the perennial question, Why have we in England no vegetables? To doubt the fact is impossible—at least to anybody who knows what real vegetables are like. 'Sir,' said an American stranger at a restaurant in the Strand one day, 'Sir, this is the one thing you can raise in your country and we can't raise in ours—a mutton chop; but then you never tasted Green Peas in all your life.'"

The credulity of our friend is very striking here, for he appears on the matter of having "never tasted Green Peas" to have taken the American at his word. To this there can be no objection; it was, perhaps, only courteous under the circumstances, and we pass on. We flatter ourselves that we have amongst our readers some cultivators and judges who "know what real vegetables are," and we think they will not find it "impossible" to agree that our author has been slightly "taken in," and they will perceive also that his logic is not quite faultless. He goes on to say—

"It is impossible in the same country to have good meat and good vegetables. The same causes which give us good meat deny us in England the possibility of good fruit and vegetables. For while the herbage requires copious rain, the fruits, seeds, pods, flowers, buds, and other miscellaneous objects which we class from the culinary point of view as vegetables all require copious sunlight. That is why we have none of them. Our only good vegetables are such as very young Rhubarb, Seakale, Asparagus, and Celery, which are the blanched sprouting shoots of perennial plants. These mostly come in spring time; and as they are none the worse, or even all the better, for a little wholesome soaking, they manage to survive our climate well enough in the long run."

The promulgation of this wonderful discovery must add to the fame of even the *Pall Mall*. We say nothing about the "blanched sprouting shoots;" but if it is impossible for anyone who knows what real vegetables are to deny that "only two" are "eatable," a little explanation seems to be needed for including twice that number into the culinary list. The "American" had, perhaps, better be consulted on that point. We again pass on—

"As for pulse generally, our Beans are all stringy; we have neither the variety nor the tenderness of the American Bean. Our Peas have some good points for English Peas; but they are not half so large, or luscious, or melting as American Peas. They take too long growing, and have got old and hard before they are big enough to pick. The delicious crinkly eatable-pod pea would be impossible here; it would have got tough and sinewy a month before it was ready for cooking."

We find two or three subtleties involved in this paragraph, which we will not pretend to extricate, but simply observe that the "American Beans" are grown in England, and "all" are certainly not stringy; on the contrary, they are generally excellent. As to our miserable Peas, so much are experienced Americans impressed with the size and superior quality of the best varieties as grown in this country, that they purchase them largely at high prices, praise them in their press, and award prizes to them at their exhibitions. We were under the impression that such results were indicative of good quality. The great vegetable critic does not appear to have been sufficiently posted up on the "Pea question." Then on the subject of "stringiness" of Beans and "hardness" of Peas. In England heat and drought always cause these; in moist genial summers the produce is unfailingly crisp and tender. This is a little awkward for the new meat and vegetable theory. Either the facts are at fault or the inventor is; without any disrespect we prefer the former, and dismiss the "delicious impossible Peas here" as delicious nonsense. But perhaps we had better allow the promulgator of the dogma "impossible to have good meat and good vegetables in the same country" to show the fallacy of his own assertion—

"In the matter of leafy vegetables we can do a little better, but not enough to boast about. We are strong in salads; our climate provides us with plenty of fresh green Lettuce, but Endive does not flourish in England. Our roots are good; who will deny the British farmer the glory of his Turnips, his Beets, and his Mangold Wurtzel?"

Without explaining to the sapient critic that roots are not meat but really vegetables, which it is "impossible to grow in the same country," it may be useful for him to know that the same climatic conditions that are so favourable to the growth of the crops he praises are precisely and equally suitable for perfecting for culinary purposes those which he denounces, these not only being Peas and Beans, but "Broccoli and Cauliflowers, which are not nearly so good as the American." The truth is, the American cultivators of such crops envy us the climate that makes our grass so green, and green vegetables so fine. We think, too, we can grow Endive; but the finest salads, perhaps, come from France; and it is only fair to our neighbours, too, to observe that

of "our only two eatable greenstuffs," they supply the largest "blanched" shoots of Asparagus, and it is no doubt this *French* produce that our critic has found "in a restaurant" and praised, English produce as a rule not being blanched. The truth of the matter is this. If this self-constituted judge will visit our gardens and horticultural shows he will find the finest "greenstuffs" the world can produce; restaurant experience of spoiled vegetables affording scarcely sufficient evidence of his competency to speak with authority on a subject of this kind.

We cite one more paragraph—

"What is true of vegetables is even more true of fruits. To be sure our English hothouse Grapes are the best in the world; but of Tomatoes we know nothing, and for Strawberries, Raspberries, Currants, Gooseberries, Plums, and Cherries we must go to America. Our Peaches are a success, our Apples are a national failure, and our Pears are a standing insult to the human intelligence."

Our comment on this is that perfectly ripe Tomatoes are cut in England during every week in the year, and they are as good in their way as our Grapes; our Peaches except under glass are a failure, and we shall not "go to America" for the small fruits named, as thanks to our "meat-growing" climate we can gather them in better condition at home. To adopt the words of the writer of the article to which we have referred, it is a "standing insult to human intelligence" to suppose that such erroneous notions can meet with acceptance from "those who know what real vegetables are like."

DENDROBIUMS.

A PROMINENT position is deservedly held in Orchid collections of the present day by the numerous species and varieties included in the above genus. Both in beauty and numerical strength it is probably not excelled by any other cultivated genus of Orchids, the *Oncidium* and *Odontoglossum* with the *Dendrobium* forming a very large proportion of the total number grown in English gardens. Great diversity in the colours, odours, and forms of the flowers, and a general ready adaptability to cultural requirements, have undoubtedly been the chief means of encouraging this popularity; but it must be further remembered that the majority are natives of the East Indies, occupying regions that have been much explored, the districts being comparatively easily accessible to the plant-hunter. Another point in their favour is that most of them are readily established after importation, and by this means few have been lost as compared with other Orchids. The best forms well merit all the attention they receive, but there are many to be found in botanic gardens which are quite as worthless in a horticultural point of view as some of their allies—the *Erias* and *Bolbophyllums*. Of the others—the really useful forms—however, there are quite as many as are needed, and the chief difficulty where only collections of moderate extent can be grown, is selecting a few from such numbers of beautiful species. Few gardens containing a representative collection of plants will be found without some members of this genus, and if only one Orchid is grown it is almost sure to be the general favourite *D. nobile*.

GENERAL CULTURE.—Though many *Dendrobes* require special modes of culture, which will be alluded to in the following notes describing the most beautiful forms, yet an outline of their general requirements may be given here as a guide to novices and amateurs. Where a large collection of species is grown a house is devoted to them, and when this is at command it is advantageous and facilitates the grower's work, though it is by no means essential. The temperature of the ordinary East Indian house, which ranges from 70° to 85° or 90° in the summer, is the best suited for most *Dendrobes*, especially those from tropical India; but such forms as *D. infundibulum*, *D. Jamesianum*, and the Australian sorts require cooler treatment; and some of the others, as *D. Falconeri*, are generally rested in a cool position. Even where the convenience of an Orchid house is not enjoyed the usual plant stove is adapted for many of the strong-growing species, and a warm vinery or Peach house will also suit the easily managed forms. Few are really difficult to grow, though we often find in even the largest collections one or more that seem to defy the efforts of the cultivator. These, however, are no doubt influenced by some local conditions which are not easily ascertained. Abundance of light is essential both in assisting growth and maturing it; indeed without attention to the latter it is difficult to insure a profusion of flowers even with the freest. Shade must only be employed to prevent scorching when the sun is excessively hot, and if firm plump pseudo-bulbs are obtained before winter, success the following season is almost certain. Water must be freely supplied during the growing season, syringing well in favourable weather, but avoiding as much as possible allowing water to accu-

mulate at the base of the leaves, as it is likely to cause decay and general unhealthiness.

Blocks, pots, and baskets are employed, and some species appear under different growers' hands to succeed equally well on all the systems. Pots and baskets are more frequently used, and where there is any doubt respecting the requirements of a particular form basket culture is probably the safest, for few fail to succeed in them if judiciously attended to. Baskets are also best adapted for all *Dendrobes* having long pendulous growths, as the flowers are then seen to best advantage, but the erect and strong-growing sorts thrive admirably in pots. For these abundant drainage must be supplied, three parts filling them, employing a compost of good fibrous peat in lumps, sphagnum moss, small potsherds, and charcoal. A similar compost is required for baskets, but in some cases the peat is omitted, while for blocks a little moss is only needed, securing the plants by wire stretched tightly across. In potting the compost must be placed in firmly, well elevating the plant, covering the roots with a little of the compost, surfacing with living sphagnum, and secure the plant with a few pegs or small stakes if it is heavy or likely to become disturbed.

PROPAGATION.—This is usually effected by division where the plants have attained considerable size and smaller specimens are



Fig. 49.—*Dendrobium Bensoniae*. (See page 256.)

desired. Several of the species also produce upon the pseudo-bulbs growths having at their base a few roots; these may be carefully separated from the parent plant, placing several together in a basket or singly in small pots, giving them similar attention to the older specimens, and they soon become established. Propagation by seed is only practised when it is desired to raise distinct crosses or hybrids, and then it is a good plan to sow the seed upon moss as advised by Mr. Swan in a recent issue of this Journal.

These few cultural outlines will suffice to indicate the general requirements, and those that need special treatment will be mentioned in the following descriptive notes of the most attractive and useful species and varieties in English gardens at the present time.

D. NOBILE.—Probably there is no Orchid now grown which is better and more widely known than this, and in usefulness it is certainly not excelled. Even in a genus including so many handsome forms it is scarcely surpassed in beauty, especially the fine varieties, many of which are now seen far superior to the original type. It is also very easily grown; but while it will endure much ill treatment it amply repays for the most careful attention, and in many gardens flowers are to be obtained during at least six months of the year. This is pre-eminently a gardener's *Dendrobe*, as it is so very accommodating, and an Orchid house is so far from being indispensable to its success that some of the best specimens I have seen have been grown in a vinery. Most of the larger specimens are grown in pots, but basket culture also suits this

species very well with the compost recommended in previous remarks. When it is desired to encourage the plants, or they have become so large that it would be inconvenient to shift them into larger pots, weak liquid manure may be advantageously supplied occasionally, but that as well as the water given when they are grown should be tepid—not cold, as that gives a serious check to the growth. Mr. Bardney grows this Orchid very well, and his method detailed in the Journal, May 6th, 1880, deserves the attention of all who wish to obtain the best results.

D. nobile is an old inhabitant of our gardens, having been introduced from Macao by Reeves in 1836, and since that time several very beautiful varieties have been obtained. One of the best of these is *cœrulescens*, which has flowers of moderate size, but very deeply coloured with rich purple. The flowers are charming for button-holes and bouquets. Doubtless, however, the best of all is that in the collection at Burford Lodge, Dorking, which has been named *D. nobile nobiliss* by Professor Reichenbach. I recently had the pleasure of seeing this superb variety, which well merits the high encomiums it has received. The flowers are of great size and excellent form; but its chief characteristic is the remarkable colour, the richest purple, extending throughout the flower. I am informed that it was originally included in Rollisson's collection, and Mr. James of Norwood obtained it from them. A small but pretty form is *intermedium*, the flowers being very neat but not very rich in colour. The fragrance of this species is variable but pleasing.

Very large specimens are frequently seen at metropolitan exhibitions, one of the finest being Mr. J. Douglas's well-known specimen, which is about 5 feet in diameter; but the finest I have any knowledge of was a specimen grown at Rushton several years ago which had 140 growths, some nearly 6 feet long, and one season bore over 1200 flowers.

D. BENSONIÆ.—A handsome species and a great favourite with Orchid growers. It is adapted for culture either in a pot or on a block, but its pendulous habit especially suits it for the latter mode. A warm and light position in the East Indian house appears to meet its requirements, with liberal supplies of water during growth; and a well-marked season of rest in a cooler position will induce it to flower freely.

It is a native of Moulmein, where it is found growing upon the branches of trees in exposed localities. The stems are 1 to 2 feet long, pendulous, and bear a few linear leaves, the flowers being produced two or three together near the extremity of the stems. They are usually 2 or 3 inches in diameter, of fine substance; the petals broad, and, with the sepals, are white; the lip being rounded margined with white; the centre a deep orange, and two blotches of rich purplish crimson. The woodcut (fig. 49, page 255), well portrays the form of the flowers and the position of the blotches upon the lip.

This fine species was introduced by Lieut.-Col. Benson, and is named in honour of his wife. The flowers are produced in the summer months, and the plant continues attractive for about three weeks, so that it is by no means a fleeting beauty.

DENDROBIUM PIERARDI.—One of the oldest known forms of the genus; and though surpassed by many in richness and brilliancy of colouring, its flowers possess a delicacy of tint which still render the plant a favourite. Perhaps the best indication of its merits is to be found in the fact, that though known in England for nearly seventy years, it still holds a foremost position in collections. Indeed, well-grown plants with stems several feet long clothed with flowers, as they are in the early spring months, cannot be despised. Specimens were first sent to Dr. Roxburgh at the Calcutta Botanic Garden by M. Pierard, who collected them at Chittagong and in the Delta of the Ganges, where the plant is chiefly found. In 1825 the Hon. and Rev. W. Herbert included a plant in his collection which was said to have been received from Dr. Carey several years previously, accompanied by the following interesting note—"It is cultivated at Calcutta by tying it on a smooth branch of a tree, water being constantly conducted to it by a string through a small aperture in a vessel above, that so treated it hangs down the length of 6 feet covered with flowers after the leaves decay." The stems are generally pendulous, bearing the flowers from their nodes either singly or two or three together, each about $1\frac{1}{2}$ or 2 inches in diameter, with narrow elliptical creamy-white or purple-tinted sepals and petals, the lip being pale lemon yellow, the base rolled closely round the column forming a kind of tube. The flowers are produced in March and April, and a succession of plants will maintain a supply for some time. There are several varieties differing from the type in the size and colouring of the flowers, one of the best being *D. Pierardi latifolium*. Basket culture suits the species very well, the usual East Indian house affording the quarters best adapted to its requirements.

D. DEVONIANUM.—This is justly entitled to high rank amongst its allies, and though scarcely meriting the designation "King of the Dendrobies," which some enthusiastic orchidists have bestowed upon it, it is unquestionably very handsome, well deserving the favour it receives. It was introduced from India—the Khasya Hills—about the same time as *D. nobile*, and named in honour of the Duke of Devonshire. The flowers are of moderate size, the sepals and petals white slightly tinged with rose and tipped with purple; the lip being of delicate texture, white blotched with orange, and having the margin beautifully fringed as shown in the annexed woodcut (fig. 50, page 257).

This also succeeds either in a basket or on blocks in the East India house, and needs an abundant supply of water both in the air and at the roots. It is not difficult to grow, and when in flower during May and June it is very attractive. The stems are slender and frequently exceed a yard in length, the flowers being produced in pairs from the nodes on the upper portion, sometimes clothing half the length of the stems.

D. CRASSINODE.—One of the most remarkable species in the genus, and also one of the most beautiful when in its best condition. It thrives well in small shallow pans at Messrs. Veitch's, Chelsea, and it is astonishing how the plant with the roots in such a small space could support growths of so great a length and such numerous flowers. Baskets and pots are also employed with satisfactory results, the chief point needing attention being to have the peculiarly knobbed pseudo-bulbs well developed and matured after flowering. The species is a native of the Arrakan Mountains, where it has been observed at an elevation of 2500 feet. It was first found by Mr. Parish, but plants were sent to Messrs. Veitch and to Kew by Col. Benson about twenty years ago, and they flowered simultaneously at both establishments several years later. The flowers are produced from the nodes of the stem, usually in early spring. In colour the sepals and petals are white tipped with rosy purple, and the lip has a bright yellow centre. There are several varieties, one of the best being *D. crassinode Barberianum*, which has much larger flowers than the ordinary form, the colour being much richer; indeed it has been not unreasonably considered to resemble *D. Wardianum*. Other lighter-coloured varieties are *album* and *albiflorum*, the former having been exhibited by Sir Trevor Lawrence in excellent condition, and certificated by the Royal Horticultural Society.

D. BRYMERIANUM.—In singularity of floral form this is probably unsurpassed in the whole genus, for though there are several forms with the lip slightly fimbriated, no other has the margin so deeply and strangely cut as this. When several flowers are expanded together, as with the plant recently shown by Mr. Salter of Streatham, the effect is very peculiar and striking. The rich golden orange colour of the flowers also renders them attractive, though in a strictly ornamental or utilitarian point of view the species cannot be compared with some other forms. It is, however, a handsome curiosity, and wherever space can be afforded for the peculiar forms of the vegetable world this should certainly have a place.

The woodcut (fig. 52, page 265) represents a single flower admirably, the strange lacinated or fimbriated margin to the lip being especially well shown. This fringe is sometimes nearly 2 inches long, and would appear to serve some purpose in attracting insects, probably to insure fertilisation. It is an interesting study for botanists or anyone who finds pleasure in such curiosities. Plants were, it is thought, first introduced in a collection of Burmese Orchids several years ago, and it was named in honour of W. E. Brymer, Esq., of Dorchester. Messrs. Veitch & Son, Chelsea, exhibited a plant on April the 9th, 1879, when a first-class certificate was awarded for it. The species is by no means abundantly represented in Orchid collections at present; it is only in a few of the largest that specimens can be seen, and I am not aware that it has been imported in any quantity.

It succeeds very well in well-drained pots, and requires a position in the East Indian house.—L. CASTLE.

(To be continued.)

LABELS.

THERE is a very important difference between Mr. Garner's label and mine, which I desire to point out. Mr. Garner does not give the strength of his galvanised wire upright, but to manipulate it as he does it cannot be very strong. The strength of mine is No. 6. This is strong enough to allow it to be kicked over or trodden upon when upright without bending, and I know by experiment that nothing weaker than what I use is sufficient. I at first used perforated thin hurdle bar iron, but this was more ponderous and more expensive than necessary, and by trying

different sizes I reduced the upright to what I consider the minimum of strength which is sufficient. Mr. Garner's label may be very good for neat well-kept beds in small villa gardens, but where the borders are large and wide and fronting shrubberies something stronger is required. My labels are kicked down by the hundred—first, by myself or my men getting on to the border to tie, to plant, to cut shrubs, or to weed; second, by boys bird-nesting; third, by dogs hunting rabbits, which will find their way into this garden and must be hunted and destroyed; fourth, by other unaccountable and mysterious means. These casualties may sound horrible to owners of neatly kept little gardens, but they are of daily occurrence in mine; and if the standard of the label is bent double every time they happen it becomes far more troublesome than if it is strong enough to remain unbent. I am far from thinking my label quite satisfactory, but am merely mentioning one condition which a satisfactory label must fulfil.—C. WOLLEY DOD.

[This condition is an important one. The wire supporting Mr. Garner's labels was not so strong as that used by Mr. Wolley Dod. Can Mr. Garner show that No. 6 wire can be attached by his method?]

PRUNING AND MANURING ROSES.

By this time most or all of the Rose bushes in the kingdom have been pruned, and possibly to many of the beds a dressing of manure has been applied and lightly dug in. To-day we pruned



Fig. 5J.—*Dendrobium Devonianum*. (See page 256.)

ours, and we have never had so much sound wood or such a choice of beautiful buds. This garden is in an exposed late locality in the "north country," but this does not account for the number of dormant buds. Only fourteen days ago Gooseberry bushes and flowering shrubs were earlier than these in Kent; indeed, not 100 yards from our beds are others under precisely similar conditions save one, and the buds of these Roses have started, even those at the base. No one need ask better-conditioned Rose wood than that under our charge: worse than the others can hardly be conceived. The one condition which makes all this difference is the difference in the manuring. We are almost afraid to write it, but for years the Roses here have had no manure, and yet they have improved every year since the practice was discontinued.

It was time for something to be done. Every year the death rate was alarming—at least, whenever a really severe frost occurred in winter. When a mild one occurred matters were not much better, for then the buds started down to the earth line only to be crippled later.

Then they were cultivated according to the books; now experience has taught a different and a more excellent way. The books said very plainly that for every ounce of food the plants were likely to use not less than a stone was to be given. Experience has taught that enough is plenty, and more than enough an evil.

The lesson might have been learned earlier. Near to where the Roses died or grew unsatisfactorily was a border of herbaceous

plants, with a few dozens of Hybrid Perpetual Roses which always grew well, bloomed well, and always had plenty of unstarted buds to choose from in spring. One autumn all the Roses were lifted and regulated, for many were straggling bushes. As the soil is thin it was not very deeply dug—just two spades, in fact. The subsoil was at the same time broken up and left where it was. As no further addition of manure was to be given at any future date a fair dressing was intermixed this time, the Roses planted deeply to secure their being independent of the stocks by-and-by. No mulching was given, and none has been given since; and although they have passed through two winters of great severity our losses from all causes have not been over 3 per cent.; before it certainly was not under 20. Not only so, but there is now a far better show of far better blooms than formerly, and, what is stranger, the growths are much stronger. Before, they were continually moving, being excited by overfeeding, and the consequence was an exhaustion of their vigour in spasmodic spurts. Now they start late in spring, and make up one vigorous growth, to which the whole efforts of the plants are directed. Before, they started every month of the year except at the time they should. November was then not too late nor February too early for a start, but though so anxious to start they made but a poor show at the winning post.

It is not a question of climate, for the Roses of our neighbours still behave as ours did formerly, and all because of mistaken kindness. No better samples of two differing principles could be had than these two lots; yet our neighbour, at present despairingly searching for dormant buds, still persists in laborious manurings. The consequences are as stated.

Growers often recommend the employment of fresh loam to Rose beds. New soil is considered good. So it is; but why is the "old" soil old? It is just far too rich, and the greater virtue of the "new" soil lies in its freedom from so much plant food. Such "old" soil makes good manure, as anyone who may use it for vegetables in not too strong doses will find out. In short, much money and labour is spent among Roses to create mischief.

Planting deeply is a good plan. Those here were all planted deeply. Often they have been killed in numbers to the ground line or below it, but they grew stronger than ever. Are not many plants over-manured? Is there not too much rule of thumb in the supply of food? We certainly think that in the case of plants from sunnier climes—and Roses are—many more would be hardier than they are were they not induced to make ranker growth than there is sunshine enough to mature; and the less the sunshine, the shorter the summer, the less manure should be applied. It is good for our well-tried plants that they are common. Were the Scots Fir a new introduction we verily believe it would be pronounced not hardy, for the first specimens would be so gorged as to really make them tender. This, above everything else, is what ails our Roses. In sunnier climes unlimited food supplies may be all right; in our latitude such treatment is all wrong—ruinously wrong.—SINGLE-HANDED.

SHROPSHIRE HORTICULTURAL SOCIETY.

THE above flourishing Society held its second spring Show on Thursday last, March 23rd, and was a great success. The entries were far more numerous than last year, and the exhibits very superior. Hyacinths, Tulips, and other spring-flowering bulbs were the main features of the Show. For eighteen Hyacinths, distinct, in 18-inch pots the honours were divided between Messrs. Jones & Sons, Cotton Hill, and Messrs. Pritchard & Sons, Frankwell Nurseries, who were awarded equal first prizes. The Hyacinths of Messrs. Jones & Sons were remarkably fine and well grown. They comprised Charles Dickens, pink, very fine; King of Blues, Fabiola, Alba maxima, Frederick the Great, pink; Czar Peter, Cavaignac, Mont Blanc, Alba superbissima; Ida, a lovely spike; Van Speyk, Noble Par Merité, Prince of Waterloo, Triomphe Blandina, Mimosa, General Have-lock, Gigantea, and Duchess of Richmond. Messrs. Pritchard's were a little overdrawn. For twelve spikes Mr. H. Jones was first with a splendid collection, undoubtedly the best twelve in the Show, Duchess of Richmond, Gigantea, Pieneman, very fine; Fabiola, Monsieur de Faesch, Sultan's Favourite, Tubæflora, Alba maxima, Baron Von Humboldt, Baroness Von Tuyl, Mont Blanc, and Ida. Mr. J. W. Pritchard was second with good examples.

For six Azaleas in flower Messrs. Pritchard were first with well-flowered untrained plants. Mr. Pratt, gardener to Viscount Hill, Hawkeston, was second with very similar plants, but not so well flowered. For three Orchids Mr. Pratt was the only exhibitor, and was awarded the first prize. Dielytras were exhibited by Messrs. Pritchard & Sons and Mr. J. W. Pritchard, who were awarded the prizes in the order named; the plants were very fresh but small. Cyclamens were shown in splendid condition by Mr. Milner, gardener to Rev. J. D. Corbett, Sundorn, who was awarded first prize for six; T. S. Eyton, Esq., being second with smaller but good plants. Cinerarias were in full force, and very good; Messrs. Jones & Sons being

first with exceedingly dwarf and well-flowered plants not more than 12 inches high and very bushy. Mr. Pratt, second, showing good plants, but of a very different habit to the first-prize plants. Primulas were not good, but those shown by Mr. T. S. Eyton were bright in colour, and were awarded first prize. Spiræas were good, Messrs. Oldroyd & Co. and Messrs. Jones & Sons being the prizewinners in the order named. Callas were well shown by Messrs. Oldroyd and T. S. Eyton, who received the prizes as named. Lily of the Valley were exceedingly good in 7-inch pots; Messrs. Jones & Sons being the successful winners with handsome pots, some having over eighty sprays of flowers. Messrs. Oldroyd & Co. were second. The same exhibitors were also first for six pots of Violets, and Messrs. Oldroyd second. For a collection of bulbs, fifty pots, Messrs. Jones & Sons were once more to the fore, showing a splendid lot of Hyacinths, three and four in 6-inch pots with fine spikes, Alba maxima being good. Tulips, Narcissus, Jonquils, Eucharis, and Callas completed this fine collection. Messrs. Pritchard & Sons were second with an excellent group.

For twelve pot Tulips Messrs. Jones & Sons were again the premier exhibitors—Joost Van Vondel, Imperator Rubrorum, Yellow Prince, Gloria Solis, Tournesol, Royal Standard, all in superior condition. For thirty-six hardy spring-flowering plants, Messrs. Oldroyd first, and Messrs. Pritchard & Sons second. A special prize was awarded to Mr. J. D. Corbett for a collection of hardy herbaceous plants.

Bouquets were not numerous, but exceedingly good, Mr. Pratt being awarded first honours in both classes for bridal and ball bouquets, and Messrs. Jones & Sons second in each. Mr. Pratt's bouquets were of exceptional quality as regards flowers, but crowded; while those of Messrs. Jones & Sons were said to be superior to any before exhibited by that well-known firm of bouquetists. The decision in this popular class caused not a little surprise.

Twenty classes were set aside for local amateurs, comprising Primulas, Azaleas, Hyacinths, Tulips, Lily of the Valley, &c. Mrs. Shaker, Dr. Burd, H. H. Treasure, Esq., Miss Brooks, and Rev. J. H. Charter were the principal prizewinners, but these classes were not so well filled as could have been hoped by the number set apart for them. Special prizes were awarded to Messrs. Oldroyd & Co., Pritchard & Sons, and Jones & Sons for large and beautiful collections of plants; to Messrs. Pritchard for a large cross of white flowers, and to Mr. Pratt for six double Cinerarias of very good habit. Great credit is due to the Honorary Secretaries, Messrs. Adnitt and Naunton, for the excellent arrangements, and their courtesy to all exhibitors rendered the event most agreeable. The Judges were Mr. Jones, gardener to Mrs. Heywood, Cloverly, Salop, and Mr. Stacey, Birmingham.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, Col. R. Trevor Clarke in the chair, the following candidates were elected Fellows of the Society—viz., J. F. Bowring, George Cheverton, F.L.S.; Miss Fanny E. M. Curric, David Davidson, John Freeman, Com. Sebastian Gassiot, Mrs. Leisler, Mrs. Henry Monro, Capt. Ernest Rice, R.N.; Basil Thomas Woodd, Henry Wootton.

— MR. W. TAYLOR writes—"I have to thank a correspondent for pointing out a mistake I made as to the capacity of a wine-glass when speaking of PETROLEUM FOR KILLING INSECTS. It is, as he says, 2 ozs. instead of 1 when measured by the marks on a doctor's bottle, and the doctor's bottle is as good as anything for the purpose of measuring it."

— MESSRS. JOHN LAING & Co., Forest Hill, inform us that Mr. Henry Clark, late gardener to Mrs. Hall, Syndale Park, Faversham, has been appointed gardener to His Grace the Duke of Marlborough, Blenheim Palace, Woodstock, Mr. W. Crump having retired with the intention of commencing business in Leamington.

— THE TEDDINGTON ROYAL HORTICULTURAL SOCIETY will hold their eleventh Annual Exhibition in the grounds adjoining Bushey Park Cottages on Wednesday, July 5th, when prizes will be offered in ninety-two classes for plants, fruit, and vegetables.

— A CORRESPONDENT writes from Cambridge that "ANEMONE APENNINA is one of the finest possible plants for natural-

ising in woods and bye places. In the Fellows' garden of St. John's College it is now magnificent, some of the patches being even 5 feet across. This is one of the brightest spots in the neighbourhood during spring time. Until lately the Winter Aconite was in great beauty, whole tracts being covered with yellow blossoms. Snowdrops, too, were abundant and charming, while Hepaticas and other spring flowers have been no less beautiful. Daffodils are now flowering in thousands, and the Grape Hyacinth is well established and flowering freely. All these plants are undisturbed, and it is astonishing how well they grow and multiply. It is impossible to see this garden without longing to have something more than the formal borders of a well-kept establishment. Indeed, it is only under similar circumstances that some of our loveliest flowers flourish the best."

— THE schedule of the ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY announces that the Summer Exhibition will be held on August 5th and 7th, when liberal prizes will be offered in a large number of classes for plants, fruits, flowers, and vegetables. Prizes for cottagers are amply provided, and special prizes are also contributed by the Secretary, Mr. C. S. Fuidge. The autumn Show of Chrysanthemums and fruit will be held on November 14th and 15th in the Skating Rink.

— REFERRING to the origin of THE MANETTI ROSE a recent issue of the *Journal des Roses* states that it was raised from seeds obtained from Persia by M. Manetti at the Botanic Garden of Monza, Italy. In 1837 some plants were sent to Mr. T. Rivers at Sawbridgeworth by M. Crivelli of Como, Italy; and it was introduced from England to France the 20th of March, 1840, by M. Portemar fils.

— THE same number of the above Journal gives a fair coloured plate of ROSE STAR OF WALTHAM, a beautiful variety, now well known to all Rose-growers in England. It will, doubtless, be remembered that this variety was sent out by Messrs. W. Paul & Son of Waltham Cross in 1875, though in the above Journal it is erroneously stated to have been placed in commerce in 1835.

— THE Spring Exhibition of the ROYAL WESTERN HORTICULTURAL SOCIETY will be held in the Plymouth Guildhall on Tuesday and Wednesday, May 9th and 10th. The schedule of prizes is a large one, and contains several valuable special prizes. £27 is offered for Roses in pots; £7 10s. for stove and greenhouse plants; £6 10s. for Azaleas, and £5 5s. for nine Ferns; while for a single specimen plant of any sort a silver cup value £3 3s. is offered as a first prize. The Hon. Secretaries are Messrs. Walling and Bond.

— THERE is now a good display of ACACIAS AT KEW, especially in the temperate house, where some of the large specimens are loaded with flowers. *A. verticillata* is very handsome when it attains a height of 12 to 20 feet, the cylindrical pale yellow heads of flowers contrasting well with the dark green leaves or phyllodes. This species is also useful for conservatory decoration, as it flowers in a comparatively small state. The compact handsome specimens of *A. armata*, 12 feet in height, are very finely in flower, the fragrant *A. dealbata* being now somewhat past its best, though it has been as floriferous as usual. *A. leprosa laurifolia* is not often seen, though very pretty, the light yellow globular flower heads being freely produced. *A. diffusa* is similar to the last, with smaller leaves.

— ON the 23rd inst. Mr. Romer, Q.C., applied to Mr. Justice Chitty for the appointment of two directors of the GENERAL HORTICULTURAL COMPANY as provisional liquidators of the Company, pending the hearing of a creditor's petition to wind up the Company. The application was assented to by Mr. Crossley, Q.C., on behalf of the Company, which, it was said, was

insolvent. Mr. Justice Chitty granted the application, and authorised the provisional liquidators to carry on the business in the ordinary way as a going concern, and to spend a sum not exceeding £350 a week.

— To admirers of DOUBLE CINERARIAS the blooms recently shown at Kensington by Mr. R. H. Vertegans of Edgbaston, Birmingham, were very interesting. Much attention has been paid to these double varieties at the above nursery, and the collection now includes most of the best forms obtainable. The flowers are neat, compact, and globular in form, the colours being very diversified, ranging from rich crimson through purplish blue to rose and white. The blooms are well adapted for cutting and arranging with other flowers for bouquets or in other floral decorations, as they are more durable than the ordinary single forms. Mr. Vertegans grows a large number of the double varieties; indeed, he has a long house almost filled with them.

— THE usefulness and beauty of FORSYTHIA VIRIDISSIMA when forced in pots for conservatory and greenhouse decoration is too little known, though it is practised in a few establishments with such pleasing results that it well deserves the attention of gardeners generally wherever a good display of early flowers has to be maintained. Some of the best examples we have seen were in the beautiful conservatory at Furzedown, Tooting Common, where in combination with the ordinary forced plants, and even with such choice Orchids as Phalænopsis and Dendrobiums, their numerous yellow flowers have a pleasing effect. This Forsythia is also similarly grown at Kew, where it has attracted much attention. Specimens of moderate size and compact habit should be taken in autumn from the shrubbery and potted in good turfy loam, transferring them to the forcing house in succession. They can thus be had in flower from Christmas until they bloom outside. After flowering cut in any straggling branches, and encourage the plants to make growth freely, placing them out of doors, either in the border, or, if they are retained in pots, a little liquid manure will assist them.

— DURING the past week the ORCHIDS AT THE FIRS, LAURIE PARK, SYDENHAM, the residence of C. Dorman, Esq., have been especially attractive, large numbers being in flower, and many which are approaching that condition will prolong the display for a considerable time. Several houses have been recently erected, all well adapted for the growth of Orchids, and the collection has been considerably increased by the purchase of established and imported plants in large numbers. All the more popular forms are represented by numerous specimens, including some of the best varieties in cultivation. Several extremely rare Orchids are also included, together with the best of the recently introduced forms. The condition of the plants is highly satisfactory in all departments, and there is scarcely another private collection within the same distance of London containing so large a proportion of healthy vigorous plants. Their culture evidently receives the careful attention of the gardener, Mr. C. Coningsby, and with very creditable results. Especially noteworthy at the present time are some plants of *Odontoglossum cirrhosum*, which are flowering abundantly and form a pretty group. Some of the varieties have large and richly coloured spots upon the sepals and petals, and in others the latter are very broad, giving the flowers an appearance of great substance. *O. Rossi* and its variety *majus* are represented by numerous plants flowering profusely, one on a block 4 inches wide by 6 inches long bearing thirteen fine flowers. On different plants the flowers vary considerably, but one of them is by far the finest we have seen in any collection. The flowers are very large, the petals broad, and the sepals marked with rich brown spots; the lip is also large pure white, and the column is purplish. The delicately pretty *O. Cervantesii*, *O. crispum*, and *O. gloriosum*

are abundant and well grown. *O. nebulosum majus* has flowers about 3 inches in diameter—a very fine variety. A handsome variety of *O. maculatum* is also flowering well, the blooms being large, the sepals and petals broad and marked with rich brown. Some of the other genera will be referred to in a future issue.

PRUNING ROSES.

THE question of Rose-pruning is really a most difficult one this year, and is one well worth discussing. I quite, as a general rule, would agree with "D., Deal," but as it has been an exceptional winter, and hitherto a most unusually warm spring, I am inclined to think we must alter our usual treatment. Last year I cut back most severely, but not till the second week in April, and in any case where I left the shoots too long, except in very few cases of the hardier sorts, I found the buds were likely to fail after starting. I have not pruned as yet, but I find buds forming in nearly every Rose, and as I grow all on the Manetti stock, and the shoots were made generally from the base of the plants and rather later than usual, they have really never lost their leaves, or ever ceased to grow all the winter through.

June and July to the 5th of August was unusually hot and dry. Then came dull showery weather with intervals of warmer and finer days, but with heavy rains during August, September, till the middle of October. We had snow on the 1st of November, and it was the only day it laid on the ground, and the only day, but one frosty day, the 23rd of December, that men were stopped from hunting. We have never had more than 10° of frost, and it has been unusually dry as well as warm, so much so that some of the heavy clay lands in some parts are too hard to plough. We had no rain from January 29th till February 25th, when we had some slight showers—0·10. 26th the same, and rather more than 2 inches of rain fell before the 5th. It then cleared with warm winds, and we have had no rain since, and our minimum temperature on the ground only 29°, and the maximum since the 6th has averaged 56°, the last three days being 62°, 57°, 60°. We have had westerly instead of easterly winds in March. The ground is quite warm comparatively, the Hawthorn hedges looking green, and the grass quite as forward as it was in the middle of May last year. I cannot help thinking we shall have an unusually forward spring, and that we had better thin out all weak shoots of Roses, and prune back the stronger shoots now to well-developed eyes.—C. P. P.

NOTES FROM MY GARDEN IN 1881.—No. 3.

AURICULAS.

I HAVE written so despairingly of the state of my collection of this much-loved flower, that it is a real pleasure to me to have to change my tone, and to say that I look hopefully to its future. Much has been said and written about the pest from which I believed my collection to have suffered—the woolly aphis, a pest which has more or less within the last few years attacked nearly every collection of Auriculas in the kingdom, and about which conflicting opinions still exist. Even as late as this week the very highest authority we have on this subject, the Rev. F. D. Horner, combats the idea that it is injurious, or whether, as he puts it, the woolly aphis has his board as well as his lodging provided by the plant. I can hardly think that a creature provided with means for sucking the juices of plants does not use his tools, or, if he uses them, that he does not do so to the injury of the plants. I have my own strong convictions on the point, nor can I account for the losses I suffered for some four or five years in my collection in any other way. I used good compost; I grew them as I had done for many years so well, and yet die they did; and wherever they did so I found at any rate the woolly aphis assisting at the funeral.

Last year my collection was at its lowest ebb I sincerely hope, and I determined on an heroic measure. The inventor of the Fir tree oil insecticide had seen my complaints in the Journal, and wrote to me saying that he believed I should find it to be an effective remedy. So I determined to try it. I shook the plants out in the month of May, and having got rid of all the soil I plunged the plants in a solution of the insecticide made according to the directions given. After giving them a good dose of the solution I then plunged them in clean water. I then planted them out in a frame filled up to within 3 inches of the top with coarse drainage and put 3 inches of good pasture loam on the top. This frame was placed under a hedge with a north aspect and left there exposed during the summer months to all weathers. This is an entirely different thing to leaving them thus exposed in pots, as there is no fear of their being too wet or too dry, and I was

astonished at the end of August when I removed them to find what length of roots they had made. I potted them at that time and could see no sign of the woolly aphid. The usual advice as to wintering them is to remove them from their summer quarters to a place facing south, but I determined this year to break through old traditions. It occurred to me that as an alpine plant they are not exposed to sunlight during the winter, and that the watering which exposure to sunlight entailed was not good for them, and that a more perfect state of rest would be enjoyed if they remained in their summer quarters, of course placing them in frames and covering them with mats. In this winterless winter there has been but little need of this, but I am convinced from my experience this year that it has many advantages over the old plan of wintering them in a southern aspect. Although top-dressing rather comes into the gardening reports of the present year, yet I may say that when performing that needed operation I did not discover a trace of the enemy. I have also now used for all my larger-sized plants the glazed pots such as Mr. Woodhead grows his magnificent collection in, and have done so with the best results. I know that this is contrary to long-cherished traditions also; and even now, despite the patent fact of Mr. Woodhead's collection, and I may add Mr. Pohlman's also, there are many persons who cannot believe that plants will prosper grown in this way, but they certainly do not require so much watering, and I think the contrast between the dark pots and the bright green or beautiful mealy foliage adds an additional charm to them.

I have discontinued growing them in the pit I had made for them. The aspect I think was wrong; and moreover, in the winter the water rose up into it owing to the springs being near and engendered so much damp that I am sure the plants suffered from it, and have now returned to my original method of growing them in frames. But as this aspect is suitable for blooming them in, and as one can have much more enjoyment in having the plants just below the level of the eye without having to stoop over the frames—no slight advantage for a sexagenarian—I moved them into this pit for blooming; and as they are arranged now on the broad shelf, the beautiful foliage, if they never had a bloom, is to a florist a thing of beauty.

Notwithstanding the many zealous hybridisers and growers of seedlings, there have been very few added lately to our recognised standard flowers. We hear of a good time coming, and it surely ought to come, when many of the older flowers will have their "noses put out of joint" by the new comers. Mr. Horner has, I believe, a number of grand varieties coming on, and has already given us a taste of his quality. Mr. Simonite's Frank Simonite seems likely to take a good place amongst that scarce class white edges; but we have not yet a grey that will beat George Lightbody, or a green to excel Booth's Freedom, such as I remember to have seen in the days when George IV. was king. And as I have often observed, this is one great advantage of growing the Auricula or other florists' flowers. The varieties of ten years ago are now nowhere. Year after year has brought fresh candidates for favour forward, and the older ones are consigned to the rubbish heap. If you cannot keep pace with these novelties, and you mention those you grow to one who gets everything new, you are met with a contemptuous shrug and an expression of pity that you should be so far behind the age as to grow such rubbish. But it is not so with the Auricula; and although some few varieties have been added to our list, yet as I look upon a collection of Auriculas and see its glories—Blackbirds, Conquerors, Ne Plus Ultras, Colonels, Freedoms, &c.—I am carried back to the days "long, long ago," when I saw and grew the very same sorts, and, like the dear familiar face we have looked upon for so many years, they kindle afresh in us that love for flowers which I verily believe the Auricula above all others keeps alive in its devotees.—D., *Dea*.

POPULAR FALLACY ABOUT QUEEN WASPS.

ABOUT every alternate spring we find an appeal in your pages to all gardeners to lose no time in destroying queen wasps now, in order to prevent the abundance of nest and consequent ruin of the fruit crop in the autumn. Every queen destroyed now is a nest the less, and so on. The appeal is earlier than usual this year.

It is very strange how hard it is for people to learn by experience to distrust any matters which, to use their own phrase, "stand to reason," yet it has been shown over and over again that an abundant flight of spring wasps is no earnest of a corresponding summer flight, but rather the contrary. And the note of any half dozen consecutive years would prove this to anyone who kept his eyes open. Yet year after year may show an abundant spring flight and record abundant twopences given

for their destruction, and no nests, and the converse, and people are none the wiser.

The subject was ventilated long ago in the "Zoologist" for 1849-50, but not then for the first time; and for some half dozen years afterwards I can answer for the fact that the spring and autumn wasps were in an inverse ratio as to number. I then ceased to make any notes, though the fact has occasionally forced itself upon me since.

Mr. James may save his money. If there are plenty of queens there will be no nests probably, and certainly if there were a nest for every queen that escaped in an abundant year there would be enough to leave him nothing of his fruit but stones and stalks.

A neighbour boasted, "I paid £5 for queen wasps in the spring, and the result is that I have not seen one wasp on my fruit." I rejoined, "I paid nothing, and have not seen one either."—DUCKWING.

ORCHIDS AT SUDBURY HOUSE.

THE residence of J. F. Peacock, Esq., at Hammersmith has long been celebrated for the extensive collection of succulent plants grown there, but for several years considerable attention has also been given to Orchids, and at the present time a large number is grown, including some of the finest species and varieties in cultivation. The collection, we are informed, has recently been placed under the charge of an experienced Orchid grower, who will doubtless maintain it in the same creditable condition for which it is distinguished. The following is a list of the Orchids now in bloom there—

Ada aurantiaca	Mormodes lentiginosa
Angraecum citratum	Odontoglossum Alexandrae
Bletia hyacinthina	" " grandiflorum
Cattleya citrina	" " Andersonii
" Trianae	" Bictoneuse
" " atalanta	" Cervantesii
" " virginialis	" cirrhosum
Cœlogyne barbata	" cordatum
" cristata	" Edwardsii
Colax jugosus	" gloriosum
Cymbidium eburneum	" Hallii
Cypripedium argus	" Pescatorei
" barbatum	" Phalaenopsis
" " biflorum	" pulchellum
" " nigrum	" Roezii
" " superbum	" roseum
" Boxallii	" Rossii majus
" Harrisianum	" " coerulescens
" Hartwigii	" " pallidum
" insigne	" " viride
" niveum	" Rucherianum
" Roezii	" tripudians
" Sedeni	" triumphans
" villosum	" vexillarium
Dendrobium aggregatum majus	" Wallisii
" Cambridgeanum	Oncidium ampliatum majus
" chrysotoxum	" Cavendishii
" " superbum	" cucullatum
" crassinode	" cleiophorum
" " Barberianum	" concolor
" crepidatum	" Kramerii
" Dalhousianum	" macranthum
" densiflorum	" sarcodes
" macrophyllum giganteum	" serratum
" nobile	" splacelatum
" " coerulescens	" trilingue
" " intermedium	" unguiculatum
" Pierardii	Phajus grandifolius
" primulinum	" Wallisii
" Wardianum	Phalaenopsis amabilis
Epidendrum cochleatum	" grandiflora
" fragrans	" Luddemanniana
Laelia auceps	" rosea
" pedunculis	" Schilleriana
Leptotes bicolor	Pilumna fragrans
Lycaste aromatica	Pleione Hookeriana
" Skinnerii	Sobralia macrantha
" " rosea	Sophranites grandiflora
Masdevallia ignea	Trichopilia suavis
" Lindenii	Vanda tricolor
Maxillaria venusta	Zygopetalum crinitum
Miltonia cuneata	" " coeruleum

INSECTICIDES.

THOSE who use petroleum as an insecticide will find how difficult it is to mix it with water, or even soap water. In fact oil and water will not mix; and if plants are dipped in a mixture of it the oil will run to parts of the leaves and do mischief. Now we apply sulphur by fumes from the pipes, cannot we use petroleum in the same way? Being volatile you could soon fill the house with fumes, which I have proved are equally distributed all over the place, and I really believe they would destroy insect life. The question is, How much without injury?

I should much like to hear of any experiments in this direction,

and I intend to carry out one shortly. Again, can anyone tell if benzoline would kill the insects? I believe it is a spirit and would mix—we know spirits and water do—and if it would be injurious to plants?—AMATEUR.

OCHNA MULTIFLORA.

THE genus *Ochna* is comparatively little known in English gardens, and the few species it includes have been invested with more interest to the botanist than the gardener. Such a species, how-

ever, as *Ochna multiflora*, which has now been flowering for some weeks in Mr. B. S. Williams's nursery, Upper Holloway, possesses considerable beauty, amply sufficient to entitle it to the attention of cultivators. It does not owe its claims to large and brilliant flowers or to handsome foliage, but to its peculiar and richly coloured fruits, which when fully ripe are extremely attractive. For these alone the plant deserves the notice of gardeners, and would form a valuable and interesting addition to any collection of stove plants.

Mr. B. S. Williams's specimen is 4 or 5 feet high, of shrubby



Fig. 51.—OCHNA MULTIFLORA.

habit, with narrow elliptical bright green leaves. The flowers are borne singly on the young shoots from the axils of the leaves, and have five or six obovate pale yellow petals and small green sepals. The petals are of very short duration, and when they have fallen the calyx commences enlarging and gradually assumes a crimson colour. The receptacle—*i.e.*, the apex of the flower-stalk upon which the pistil rests, also increases in size, becoming globular in form, about the size of a Strawberry, but less conical, and similar in colour. Upon this are placed the black seed-like bodies about the size of peas, which are really the carpels, and these present a striking contrast with the bright crimson receptacle and calyx.

Our engraving (fig. 51), which was prepared from a drawing of

the above plant, faithfully represents the chief characters, the fruit being very well shown. The plant was exhibited at Kensington a few years since, and awarded a first-class certificate.

ROYAL HORTICULTURAL SOCIETY.

MARCH 28TH.

THE first promenade Show of the season proved a great success, and, in combination with the exhibits submitted to the attention of the Floral Committee, constituted the meeting a brilliant and interesting one. The weather, too, was favourable, and induced visitors to attend in considerable numbers, the conservatory being crowded early in the afternoon.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair.—This Committee's duties were extremely light, only one exhibit being contributed—namely, heads of a new green curled hearting Kale, very compact. They were sent by Mr. Reid of Moat Mount, Mill Hill, and were said to be the result of a cross between Couve Tronchuda and Dwarf Curled Kale. The variety was recommended to be tried at Chiswick.

FLORAL COMMITTEE.—The Rev. H. Harpur Crewe in the chair. Although the Council-room was not crowded with exhibits, several very pretty and interesting new plants were staged. Foremost amongst these was a group of Amaryllises and greenhouse Rhododendrons from Messrs. Veitch & Sons, Chelsea, including some superb varieties of both. Of the former Princess Beatrice, with neat scarlet flowers striped in the centre of the division with white, and very free; Duke of Albany, flowers large, rich scarlet; Shakespeare, light scarlet; and The Giant, very large crimson and white, were the best. Of the Rhododendrons Royal Scarlet has a neat truss of scarlet flowers; Her Majesty, bluish tint, flowers large and of great substance; Favourite, flowers large, of a peculiar rose hue; and Aurora, with large orange-coloured flowers in a compact truss, were the chief varieties. In addition to the above several new plants and Orchids of considerable merit were exhibited, several of which were certificated and are described below. A collection of handsome new Hyacinths were also staged, several being certificated; but amongst those that were not so honoured Progress, rich deep blue, fine spike; Purity, large, pure white; and Sunrise, rich rose, all single varieties, were noteworthy.

Messrs. H. Cannell & Sons, Swanley, exhibited several plants of the beautiful dwarf *Spiraea Thunbergi*, which is very useful for culture in pots for early forcing. The flowers are small, white, and are produced very freely, clothing the slender branches thickly. *Cineraria Victory* is a remarkable variety, with rich crimson flowers of excellent form and $2\frac{1}{2}$ inches in diameter; was also shown by Mr. Cannell. Mr. C. Green, gardener to Sir G. Macleay, Pendle Court, Bletchingley, sent a specimen of *Boerhaavia argentea* in flower to show its peculiar inflorescence. The flowers are diminutive, greenish, and are borne on slender pendulous peduncles a yard in length. Spikes of *Antholyza bicolor* were also shown, bearing several of its peculiar scarlet flowers. A vote of thanks was accorded. Mr. R. Phillips, gardener to Capt. Jackson, The Deodars, Meopham, Kent, sent two spathe of a so-called hose-in-hose variety of *Calla ethiopica*, the external spathe being large, pure white, and enclosing a smaller one. Mr. W. G. Gaiger, gardener to S. Taylor Whitehead, Esq., Burton Closes, Bakewell, had a handsome plant of *Lycaste Skinneri* in a basket and bearing a dozen fine flowers, the sepals and petals being bluish-tinted and the lip rosy crimson. A cultural commendation was awarded. D. B. Crawshaw, Esq., Sevenoaks, Kent, exhibited a plant of *Odontoglossum Rossi* in a small 48-size pot, bearing eight flowers of good size and distinctly marked.

Mr. A. Waterer, Knap Hill Nurseries, Woking, sent half a dozen plants of the attractive shrub *Deutzia candidissima flore-pleno*, the flowers very double, pure white, and borne in racemes 5 and 6 inches long. *Andromeda japonica*, a compact-growing shrub with narrow dark green leaves and long pendulous panicles of white bell-shaped flowers, was also shown by the same firm. A cultural commendation was awarded for the *Deutzias*. Messrs. Paul & Son, Cheshunt, had a plant of the H.P. Rose Helen Paul, one of Lacharme's varieties. The flowers are of good size, the colour being a delicate blush, nearly white in the outer petals. Some double Primroses were also shown, *Croussi flore-pleno* with large rich purple flowers being especially noteworthy. Mr. H. Bennett, Shepperton, Maidenhead, contributed several of his pedigree Roses. One, Her Majesty, somewhat suggestive of La France, being attractive. Earl of Pembroke, a very bright crimson variety, was similarly noteworthy.

Capt. Patton, Alpha House, Alpha Road, Regent's Park, staged a group of twenty-two Tulips, chiefly new varieties. Some of the best were Ophir d'Or, bright yellow; L'Immaculé, white; Purple Crown, deep red; Adelaide, rose; and Rubra maxima, very deep red. The flowers were mostly small and scarcely developed. Mr. George, Putney Heath, contributed some specimens of his new dwarf Abutilons. Scarlet Gem is very free and compact, flowers of good colour. King of Roses is similar in colour, but the flowers are larger. Both are useful varieties. Mr. R. Dean, Ealing, sent a part of *Spergula pilifera aurea*, the dwarf yellow-foliaged Sandwort employed in carpet bedding, and *Polyanthus Premier*, a variety with bright yellow flowers of good size and with rich orange centres. Mr. Dean, Titsey Park, Godson, sent a basket of *Myosotis dissitiflora alba*, chiefly notable for its white flowers. Mr. Woolford, gardener to W. Lee, Esq., Downside, Leatherhead, had several pretty Orchids, including *Masdevallia Shuttleworthi* (described below), very fine; *Odontoglossum Cervantesi decorum*, also fine and certificated; *Odontoglossum Chertoni*, flower barred with rich brown; and *O. membranaceum roseum*, with neat flowers like *Cervantesi*, but smaller, and with sepals, petals, and lip rose-coloured. Mr. Salter, gardener to J. Southgate, Esq., Selborne, Leigham Court Road, Streatham, exhibited a plant of *Maxillaria callichroma*, a peculiar species, the flowers having narrow sepals and petals, white tipped with yellow. Mr. Parr, Givons Grove, Leatherhead, was accorded a cultural commendation for two well-grown plants of *Cælogyne ocellata*, each bearing about twenty spikes, or over a hundred flowers. They were in 6 and 8-inch pans. The Continental Horticultural Company, Ghent, sent two plants of *Gynura aurantiaca*, which has been recommended for bed-

ding purposes. It is a member of the natural order Compositæ, the leaves being ovate in form, 3 to 4 inches long, 2 or 3 broad, bright green, thickly covered with rich purple hairs, which are especially notable on the midrib, veins, and young foliage.

A leaf and portion of the flower spike of the remarkable *Doryanthes Palmeri*, now flowering at Kew were exhibited. The flowers consist of six narrow petals of a shining scarlet colour externally, the colour partially tinging the inner surface. The leaves are 5 or 6 feet long, nearly a foot broad, and the inflorescence is about 12 feet high. The plant is flowering in one of the octagons of the temperate house.

Mr. Wilson, gardener to H. M. Pollett, Esq., Fernside, Bickley, sent a slightly variegated form of *Anthurium Andreanum*, but not sufficiently distinctly marked to merit an award. Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, exhibited several choice Orchids, among which was the peculiar *Coryanthes macrantha* referred to below. *Odontoglossum aspersum violaceum* is a very pretty form, somewhat resembling *O. Rossi* in the form and markings of the flower, but the petals are yellowish and the spots at their base and on the sepals are very dark; the lip is large and tinged with rose. It is said to be a cross between *O. Rossi* and *O. maculatum*, and in the growth it resembles the latter very nearly. Mr. C. Turner of Slough was accorded a vote of thanks for a collection of Auriculas of the varieties Charles J. Perry and Colonel Champneys, both very pretty, the plants being in good condition.

First-class certificates were awarded for the following plants:—

Leea amabilis (Veitch).—An extremely beautiful plant, and one of the best of those remarkable for the beauty of their foliage. It is a native of Borneo, and, like its allies *L. coccinea* and *L. horrida*, requires a stove temperature. The leaves are pinnate, having two pairs of opposite pinnæ and a terminal one. These leaflets are 3 to 4 inches long and 2 inches broad, elliptical, of a dark velvety green colour, with a central base about a quarter of an inch broad, of silvery white. The plants shown were small, but doubtless as they become older they will assume the semi-shrubby character of the other species.

Odontoglossum Pescatorei Veitchii (Veitch).—The most handsome variety of this Orchid that we have seen. The flowers are of moderate size, the sepals and petals broad, heavily barred with rich purple.

Pinguicula caudata (Veitch).—A pretty Butterwort which we have previously described in this Journal. It was shown last under the name of *P. Bakeriana*. The flowers are large, of a fine rosy crimson colour, the centre being white.

The following four Hyacinths were shown by Messrs. Veitch:—*Leo*.—A striking and distinct variety with large double bells, white tinged with pink, the petals having a central streak of the latter colour. The spike is tall and massive. *Challenger*.—Bells neat, deep rich purple with a central darker streak. They are borne in compact stout spikes, and the variety is very effective. This and the two following are single varieties. *Delicata*.—A pretty variety with large bells. The segments spreading; they are whitish with a buff central streak. The spike is massive, and the delicate tint of the flowers very pleasing. *Enchantress*.—Bells large, pale blue, the colour being darker at the tips. The spike is fine and compact. All these, but especially the three latter, are very pretty varieties.

Amaryllis The Giant (Veitch).—An extraordinary variety, the plant shown bearing three scapes 4 feet high, each with four to six flowers in a head. The flowers are large, of good form, and distinctly streaked with crimson and white.

Amaryllis Duke of Albany (Veitch).—A vigorous and free form, with two scapes bearing four flowers each. The colour is a bright scarlet with a white central streak.

Rhododendron Favourite (Veitch).—One of the greenhouse hybrid section with large symmetrical flowers, the petals round and of a soft pink tint. The trusses are compact and full, bearing about a dozen flowers.

Rhododendron Aurora (Veitch).—Another of the same type as the above, having rather larger flowers, of excellent form and bright orange hue, the stamens being red.

Primula obconica (Veitch).—A pretty species of *Primula* from China, having cordate light green leaves 2 to 3 inches long. The flowers are small, very neat in form, white tinged with purple, and are borne in loose umbels 7 to 8 inches high.

Odontoglossum Cervantesi decorum (Woolford).—A superb variety, flowers $2\frac{3}{4}$ inches in diameter, the sepals and petals broad, pure white, with rich brown concentric bar near the base and the centre of the flower. The lip is also finely spotted.

Masdevallia Shuttleworthi (Woolford).—A very good form of this pretty species. The blade of the sepals is ovate, each having the apex prolonged, slender and tail-like. The two lower are thickly dotted with rich purple, the upper one being buff streaked with reddish brown.

Primrose Croussi flore-pleno (G. Paul & Son).—One of the ordinary acaulis type, with large, double, rich purple flowers. It is very distinct in colour and extremely free.

Phalenopsis Stuartiana and var. *nobilis* (H. Low & Co.).—This species is a recent introduction of the exhibitors, with neat white flowers, the lower sepal being tinged with yellow and spotted with purple. The lip is similarly spotted with purple on a yellowish ground. The variety *nobilis* is chiefly distinguished from the type by its larger flowers.

Andromeda japonica (A. Waterer).—A neat shrubby species, with narrow dark green leaves 2 inches long and about half an inch broad. The flowers are bell-shaped, small, white, and are borne in long pendulous panicles.

Coryanthes macrantha (Sir Trevor Lawrence).—A most remarkable Orchid with strangely formed flowers, the lip being shaped like a bucket. The fertilisation of this Orchid engaged the attention of Mr. Darwin some years ago, and other observers have also noticed its peculiar construction. The sepals and petals orange yellow spotted with reddish purple, the lip being a dull red.

Rose Her Majesty (Bennett).—One of the pedigree varieties with large but somewhat loose flowers; the petals thin, of a very delicate pale pink hue. The delicacy of the colour is very pleasing, but in other respects many good judges considered that the bright crimson variety Earl of Pembroke surpassed it.

Adiantum Victoriae (General Horticultural Company).—One of the numerous seedling varieties or hybrids raised by Mr. Bause at the Melbourne Nursery, Anerley. It is remarkable for the compact dwarf habit of the plant, which will render it a great favourite for decorative purposes. The pinnules are broad, rounded, and bright green. In 60-size pots the specimen shown appeared to excellent advantage.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Diseased Plants.—Mr. W. G. Smith reported on the diseased leaves of various plants received from Earl of Romney, and found they were attacked by various organisms—e.g., Primrose leaves by *Æcidium Primulae*; Carnation leaves by *Tyleuchus*, a nematoid worm, as also by *Puccinia Lychnidearum*; the *Ranunculus* leaves by a leaf-mining larva.

Saragus floccosus.—Mr. Pascoe exhibited specimens of this beetle from Queensland, attacked apparently by a species of *Isaria* while living.

Plant Labels.—Mr. G. F. Wilson exhibited specimens of boxwood labels steeped in hot paraffin; when unprepared, box labels perish rapidly. Sir J. D. Hooker observed that the paraffin soon becomes decomposed under exposure to sunlight. Mr. Lynch also showed some labels made of zinc cleaned by sulphuric acid, also some painted pitch pine labels. The question was raised as to what pitch pine is, as it apparently refers to any very resinous kind.

Plants Exhibited.—Rhododendrons.—Mr. Mangles exhibited several hybrids—viz., *R. ciliatum* (female) crossed by *R. Dalhousiae* (male), a pink hybrid called Countess of Haddington. He remarked that it is impossible to cross them the reverse way. *R. formosum* from Cachar, and *R. Veitchianum* from near Moulmein, these cross freely. This last was received, as also *R. campylocarpum*, from Mr. Herman Rucker. *R. Thomsoni* (male) crossed with *R. Fortunei* (female). Mr. Mangles observed that the prepotence of *R. Thomsoni* is seen in the crimson colour, the flowers being much enlarged and more numerous. *R. jasminiflorum*.—It is remarkable that this and other Malay species will not cross with the Himalayan. Various interesting hybrids were sent by Messrs. Downie & Laird. Flowers, including *Mesembryanthemum aciniformis*, also were sent by Miss C. Mangles from Cannes. Another collection of Rhododendrons came from the Hon. and Rev. Mr. Boscawen. One of considerable beauty with white unspotted flowers and named Mrs. Townshend Boscawen, of the arboreum type, had a fine truss, but the foliage was rather poor.

Tulips, &c.—Rev. H. H. Crewe exhibited several Tulips—*T. Celsiana*, *T. oculus-solis* var. *præcox*, *T. platystigma*, and *T. Lautelii*, probably a var. of *T. oculus-solis*, having narrow edges and a crimson eye-spot.

Doryanthes Palmeri.—Sir J. D. Hooker exhibited a leaf some 5 feet long, and a cluster of flowers from a spike 12 feet in length bearing a panicle of flowers 18 inches in length.

Coryanthes macrantha, exhibited by Sir T. Lawrence, described in the lecture. Mr. Lynch exhibited two fine branches of *Begonia Roezlii* from N.W. America; *Primula carpatica*, having a peculiar odour, and resembling the true (Barfield) Oxlip; *Asarum canadense* from California; *Cheiranthus mutabilis* from Madeira and Teneriffe; the original wild form of *Cheiranthus Cheiri* (Wallflower); *Hibbertia Rheedii* from N. Holland; *Candollea tetrandra* and *Arctotis aspera* var. *arborescens* from the Cape.

LECTURE.—The Rev. G. Henslow commenced his lecture by calling attention to the differences between the two families Liliaceæ and Amaryllidaceæ, the magnificent series of Hyacinths and Tulips, Squills, &c., illustrating the former; while Messrs. Barr & Sugden's series of Narcissus of many kinds, Amaryllis of Messrs. Veitch, and the specimen of *Doryanthes* from Kew illustrated the latter, which is easily recognised by the ovary being below the flower in the Amaryllidaceæ, but free and within the tube in the Liliaceæ. *Dicentra spectabilis*, through misspelling the name, has been changed to *Diclytra* and *Dielytra*; but *Dicentra*, meaning two spurs, is the correct name. Mr. Henslow explained how it is fertilised by bees, which remove the little clapper-like petals, and so expose the stamens and pistil on entering the flower for honey.

The most remarkable instance of insect-fertilisation, however, was furnished by the curious Orchid exhibited by Sir T. Lawrence, called *Coryanthes macrantha*, from the West Indies. In this the labellum is shaped like a boat, but attached at the stern end by a stout bent support, thus forming a powerful spring. The column which bears the stigma and anthers projects over the boat, so that their two ends are in contact. Two horn-like processes projecting from the column

continually secrete water, which is caught by the boat. Insects, such as large bees, are attracted by sweet ridges or a wing-like expansion at the basal end of the labellum. The food thus obtained appears to be stupefying or intoxicating. The result is that the bees push one another down into the boat; their wings become wetted so they cannot fly out, but can only escape by crawling along the bottom of the boat and squeezing themselves between the "bows" and the end of the column. The first insect which escapes invariably carries off the pollen-masses. But in order to fertilise a flower it must repeat the process, take a second bath and escape as before; but this time it smears the pollen upon the stigma. The lecturer next called attention to some new hybrid Rhododendrons, Messrs. Veitch having obtained first-class certificates for new sorts. He observed how in this flower, as in *Pelargoniums* and *Gloxinias*, which are irregular flowers in the wild state, are becoming regular under cultivation; the stamens, instead of being declinate, spread symmetrically round the flower, while the petals are likewise symmetrically arranged.

SPRING SHOW.

The conservatory presented an extremely gay appearance owing to the abundance of Hyacinths, several hundreds of fine plants being staged, and, combined with the Ghent Azaleas, produced a brilliant display of colour. Tulips were not largely shown, nor were they of remarkable quality in most of the collections, but the Hyacinths were generally good, and in some instances as fine as could be desired. Two tables extending from end to end of the conservatory were completely filled with groups, bulbs, and miscellaneous collections.

Messrs. J. Veitch & Sons had a magnificent display of Hyacinths, comprising about three hundred remarkably well-grown plants; the spikes being very massive, the bells large, and the colours very clear and rich. The extraordinary quality of the plants attracted much admiration from the visitors. The varieties were very numerous, including all the best in commerce, but amongst the single varieties the following were particularly fine—*La Grandesse*, large bells, white, handsome; *Madame Van der Hoop*, white, massive spike; *General Havelock*, deep purple, handsome compact spike; *King of Yellows*, the best yellow variety; *Duke of Connaught*, deep rich blue, compact spike; *Lord Derby*, pale blue, large bells and spike, handsome; *Masterpiece*, blue-black, one of the darkest, fine spike; *King of the Reds*, rich rosy crimson, neat spike; *Grand Bleu*, light blue, handsome compact even spike; *Lady Palmerston*, bright rose pink, fine spike; *Triple Crown*, light blue, very beautiful bells and spike; *Grandeur à Merveille*, creamy white, fine; *Leopold II.*, very light blue, good bells, reflexed petals; *De Candolle*, mauve, large spike; *Crinoline*, bluish white, fine bells; *Sunrise*, rich red; and *Progress*, deep blue. Of the double varieties the following were noteworthy—*Leo*, cream-coloured, large bells; *Magnificent*, light blue, fine bells; *Charles Dickens*, light purplish blue; *Sparkler*, bright blue, light in centre; *Noble par Merit*, pink, fine; *Koh-i-Noor*, light rose; and *Etna*, rich rosy crimson, large bells and spike. A silver-gilt Flora medal was deservedly awarded for this handsome collection.

Messrs. Osborn & Sons, Fulham, also had a fine collection, including a few less plants than the preceding, and they were not quite so even in size and quality as the preceding, but were otherwise very creditable. The colours were particularly rich, all the best varieties in commerce being represented. Among the best were *Vuurbaak*, *Von Schiller*, *Jonquillen*, *Lady Palmerston*, *Mont Blanc*, *Baron Von Tuyl*, *Triple Crown*, *Prima Donna*, *King of the Blues*, *Grand Lilas*, *Masterpiece*, *Lord Derby*, *Reine des Jacinths*, and *Decandolle*. Tulips and *Polyanthus Narcissi* were also well represented by a group of Ghent Azaleas completing the collection. A silver-gilt Flora medal was awarded for these fine groups. Of the Tulips the best varieties were *Vermillon Brillant*, *Keizers Kroon*, *Joost Van Vondel*, *Proserpine*, *Rose Luisante*, *Queen of Violets*, and *Adeline*. Messrs. Wm. Cutbush & Son, Highgate, contributed a handsome and extensive group of Hyacinths and Tulips, some spikes of the former being extremely large. Many of the best varieties were represented, including nearly all those already enumerated. Six boxes of fine *Camellia* blooms were also staged. A collection of Indian Azaleas was included, comprising a dozen distinct and handsome varieties. *Madame Van der Cruyssen*, double rosy crimson, very fine; *Reine du Pays Bas*, white with rose spots; and *Sigismund Rucker*, semi-double, rose and white, were the best. A silver Flora medal was awarded. In addition to the Tulips that have already been mentioned, Messrs. Cutbush had good examples of *Wouwerman*, *Roi Pepin*, *Van der Neer*, *Yellow Pottebakker*, and *Rose Gris de Lin*.

Mr. B. S. Williams staged a large and beautiful group of Amaryllises, comprising a large number of handsome and brilliantly coloured varieties. Some of the most noteworthy were the following—*Orange Gem*, flowers of moderate size but very bright scarlet; *Leeana*, neat flower, rich scarlet, the colour extending quite to the centre; *Dr. Masters*, fine dark scarlet well-formed flower; *Fascination*, long tube, white streaked with crimson; and *Loveliness*, white streaked with rose, very pretty. A specimen of the handsome *Imantophyllum miniatum* Martha Reimers, with its fine orange scarlet flowers in large trusses, was also shown. Several choice varieties of Orchids were staged, a remarkable form of *Dendrobium Wardianum* with large flowers of good form being especially noteworthy. A silver-gilt Flora medal was awarded. Messrs. Barr and Sugden, Covent Garden, obtained a similar award for a fine collection of Daffodils, comprising about one hundred varieties;

Scillas, Muscaris, Cbionodoxas, and Anemones being also freely employed. From the Society's garden a group of well-grown Cinerarias was contributed, the flowers large, and the colours particularly rich. The plants were mostly compact and dwarf, the foliage being healthy. A group of Azaleas and Begonia manicata was also highly attractive. Mr. J. Aldous, South Kensington, exhibited a fine bouquet of Daffodils with a stand of the same flowers arranged with Ferns. These were highly commended. Mr. R. Clarke, Twickenham, was awarded a silver-gilt Flora medal for a fine group of Cyclamens, comprising one hundred of a pure white variety, and about two hundred of crimson and tipped varieties. The flowers were of remarkable size and the colours excellent.

Mr. T. Ford, gardener to W. E. Hubbard, Esq., Leonardslee, Horsham, had eighty dishes of Apples in excellent condition. Some of the varieties were remarkably well represented, such as Alfriston, Wellington, Norfolk Beefing, Blenheim Pippin, and Dr. Hogg. Messrs. H. Lane & Son, Great Berkhamstead, were awarded a silver Flora medal for a large group of Azaleas and Rhododendrons remarkably well flowered. Messrs. H. Williams & Son, Fortis Green, Finchley, was awarded a silver Flora medal for a fine group of Hyacinths, Tulips, Primroses, and Lilies of the Valley.

Capt. A. L. Pattou was awarded a silver Banksian medal for a pretty group of Hyacinths, Tulips, and Dielytras, the latter flowering well, but much smaller than those contributed in previous years. Some of the Hyacinth spikes were fine, and numerous varieties were represented, the Tulips being similarly good. The same exhibitor also had a pretty little group of fine plants, Tulips, Primulas, and Narcissuses being notable. The white Primula nivalis was very pretty, with Grape Hyacinths and Scillas.

SPECIAL PRIZES.—Although several liberal prizes were offered for bulbs and Amaryllises, only one exhibitor appeared in each class, but each of these staged very good plants. In the Amaryllis class for the best seedling variety, Henry Little, Esq., Hillingdon Place, Uxbridge, was awarded the first prize for a variety named Hercules, the flower being of neat form and rich scarlet with white centre. Mr. Little was the only exhibitor in all the classes. The six named varieties were Drapeau, Royal Hereward, Orpheus, Stella, Leah, and Queen Victoria. The best light variety was Orpheus, and Hereward the best dark variety, the first prize being awarded to each. In the class for nine pots of Hyacinths, distinct varieties, and the same number of Tulips of three varieties, Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was the only exhibitor, and was awarded the first prize for well-grown plants. The Hyacinths were Fabiola, large spike; Blondin, very fine; Von Schiller, King of the Blues, handsome; Grandeur à Merveille, compact; Vuurbaak, bright; La Grandesse, Baron Von Tuyl, fine; and Mont Blanc. The Tulips were Vermillon Brillant, White Joost Van Vondel, Fabiola, Proserpine, Joost Van Vondel, Keizers Kroon, and White Pottebakker. The Hyacinths were of fine quality, and the Tulips also.

NOTES ON CARNATIONS.

It is upwards of thirty years since I first commenced growing Carnations and Picotees, and during all that time I never experienced a winter like the present. Plants here are growing fast, Auriculas are coming into bloom, Roses are in bud, and Carnations spindling; in fact, the latter appear to be growing rather too fast, as the flowering stems appear to weaken the plants so much that unless a remedy is employed many of the plants will be exhausted. The flowers, which in some cases are already in bud, will also be small and deformed. My plan is to cut the stems off which have come prematurely. This strengthens the plants and causes them to throw up one or more blooming stems, which are sure to produce good flowers. Do not let any cut-back plants bear more than two blooming stems. Pinch the points off all the rest which run for bloom. By doing this early a layer will form where the spindles are pinched. Layers of this kind, in some cases, are superior to the ordinary run. John Keet, R.F., is a variety which gives a better layer for obtaining fine blooms when grown thus.

Potting should be proceeded with quickly. In unfavourable weather they will require protecting, placing the pots in frames, or covering with netting supported by iron hoops or a wooden frame, which is easily removed. As the plants are always better for a top-dressing in June, it is a good plan to leave the soil a couple of inches below the top of the pot, which allows sufficient room to top-dress without injuring the roots by removing the soil. The plants in small pots will require examining frequently, and must not on any account be allowed to suffer from insufficient supplies of water, or the roots will perish.

Green fly must be destroyed as soon as noticed. The plan I adopt is (after the plants have been watered) to syringe them with a solution of Gishurst compound, 2 ozs. to the gallon of water. When the flower stems are growing, aphides particularly infest them, in which case I have a small can and run some of the diluted Gishurst compound down the stem so as to wet it thoroughly. Another pest which is troublesome at this time is

the wireworm, which is frequently found when new soil is used. I thoroughly examine the soil three or four times during the winter months, removing all noticed, also placing in the soil potatoes or carrots, which act as a trap.

It is now time that all varieties wanted should be procured where possible. Below I give a list of the best six in each class.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Dreadnought (Easom)
Fred (Dodwell)
George (Dodwell)
Merenry (Hextall)
Sir J. Paxton (Ely)

Crimson Bizarres.

John Harland (Adams)
J. D. Hextall (Simonite)
John Simonite (Simonite)
Harrison Weir (Dodwell)
Lord Milton (Ely)
Rifleman (Wood)

Purple Flakes.

Dr. Foster (Foster)
James Douglas (Simonite)
Mayor of Nottingham (Taylor)
Juno (Baillon)
Squire Meynell (Brabbins)
Squire Trow (Jackson)

Pink and Purple Bizarres.

Falconbridge (May)
James Taylor (Gibbons)
Sarah Payne (Ward)
Squire Llewelyn (Dodwell)
Purity (Wood)
William Murray (Adams)

Scarlet Flakes.

Annihilator (Jackson)
Clipper (Fletcher)
Dan Godfrey (Holmes)
John Bailey (Dodwell)
Mr. Battersby (Gibbons)
Sportsman (Hedderly)

Rose Flakes.

James Merryweather (Wood)
John Keet (Whitehead)
James Carter (Adams)
Rose of Stapleford (Headley)
Sibyl (Gill)
Mrs. Dodwell (Lord)

PICOTEES, H. HEAVY; L. LIGHT.

Red-edged.

John Smith, H. (Bower)
J. B. Bryant, H. (Ingram)
Morna, H. (Fellows)
Elsie Grace, L. (Dodwell)
Thomas William, L. (Flowdy)
Violet Douglas L. (Simonite)

Purple-edged.

Alliance, H. (Fellows)
Mrs. A. Chancelor, H.
Lizzie Tomes, H. (Dodwell)
Ann Lord, L. (Lord)
Her Majesty, L. (Addis)
Mary, L. (Simonite)

Rose-edged.

Edith D'Ombra, H. (Turner)
Miss Horner, H. (Lord)
Mrs. Payne, H. (Fellows)

Ethel, L. (Fellows)
Mrs. Alleroff, L. (Turner)
Miss Gorton, L. (Dodwell)

During the last three years many novelties have been introduced, and I have no doubt that many of the older varieties will be supplanted by newer sorts. Amongst growers who have produced some fine varieties lately are Mr. Dodwell and Mr. Hewitt, whose Master Fred, C.B., will, or I am much mistaken, take a leading place in that fine class. Mr. Dodwell's varieties are very numerous, and their excellence can only be ascribed to careful hybridising.

Carnation seed may be sown now and for the next six weeks in boxes. A compost I find the following answer well is two parts turfy loam, one part leaf soil, with one part decayed manure, silver sand and char burnt refuse in equal proportion. Cover the seed very thinly, and place the boxes in heat, keeping them in the dark until the seed begins germinating. Afterwards expose them to the light, ventilating as much as possible. When the plants have their second leaves they can be pricked out about 3 inches apart, where they can remain until the autumn, when they may be planted either in beds in the open, or in pots or boxes, if intended to be wintered in frames. I always winter mine in frames, as I find it impossible to keep them alive in the open in this district. GEORGE RUDD.

CHRYSANTHEMUMS.

THESE are indispensable where large quantities of flowers are required in November and December, and now is the time to prepare for next winter's display, from the middle to the end of March being quite soon enough to insert the cuttings if they are only wanted for producing flowers for cutting or for conservatory decoration. I am aware many people insert their cuttings as soon as obtainable in November, which may be necessary if they are wanted for exhibition purposes or for growing into specimen plants, but for ordinary use I have grown quite as useful plants from cuttings struck in March, and they are not more than half the trouble, as the early cuttings are very liable to damp off and require constant attention. The strongest cuttings should be selected, and if taken from plants in the open air they will be all the better. Insert them singly in 60-size pots in ordinary propagating soil. Plunged in a gentle hotbed and kept close for a few days they will soon form roots, and should then be gradually exposed to the air, and afterwards removed to a cool position near the glass where there can have a temperature not below 45°. As soon as well rooted they should be stopped, and when well started again they may be shifted into 48-size pots, employing this time and for subsequent pottings a compost of turfy loam, a little well-

decomposed cow or sheep dung, and small charcoal or bones to keep it open. The dung should be thoroughly disintegrated by drying it moderately and then rubbing it through a fine sieve, or it will cause the soil to turn sour and useless. The refuse charcoal or dust from the heap is quite good enough for the purpose. Pot moderately firm and supply good drainage, as the plants require a great quantity of water. They may be placed outdoors in a sheltered position by the second week in April, but should a severe frost come must be slightly protected. Continue to stop the shoots at every second joint until enough are obtained to furnish a good specimen. In the case of the large-flowering varieties, from five to seven shoots will be ample, according to the size of pot they are to flower in, which should not be less than 9 inches in diameter nor more than 11 inches. Pompones and intermediate varieties will succeed in 8 to 10-inch pots. It is a good plan to grow a few of the large-flowering varieties with a single stem, as they are useful for grouping among other plants.

They should be shifted into their largest pots as soon as the roots reach the sides of the 48's, and may then be plunged in coal ashes, spent tan, cocoa-nut fibre, or any similar material in an open airy position. Large-flowering varieties should not be stopped after the last week in June, Pompones and intermediates



Fig. 52.—*Dendrobium Brymerianum*. (See page 256.)

a month later. The principal attention they require now will be abundance of water at the roots, giving liquid manure every alternate time, and a gentle syringing every evening in fine weather. As soon as frost threatens to be severe they should be protected either by a canvas shelter or removing them to vineries, Peach houses, &c., where frost can be excluded. Here they will soon perfect their flowers, and may be employed as required. The following are good varieties.

Large White and Blush.—Elaine, Fair Maid of Guernsey, Mrs. G. Rundle, White Globe, White Venus, Queen of England, Mrs. Halliburton, Princess Teck, and Hero of Stoke Newington. The last two flower late.

Large Pink and Lilac.—James Salter, Venus, and Pink Perfection.

Large Yellow.—Jardin des Plantes, Golden Beverley, Mr. G. Glenny, Aurea Multiflora, Guernsey Nugget, and Gold Thread.

Brown and Dark.—Julia Lagravère, Barbara, Beethoven, Lord Derby, Refulgens, Prince Alfred, Red Dragon, and Sir Stafford Carey.

Pompones.—Bijou d'Horticulture, Mignonette, Salamon, Model of Perfection, Lilac Cedo Nulli and Golden Cedo Nulli.—W. H. DIVERS, *Burghley*.

BRISTOL SPRING SHOW.

WHAT was unanimously voted the best of a series of twelve exhibitions was held in the Victoria Rooms, Clifton, on March 22nd and

23rd. The rooms are admirably adapted for the purpose. The classes were well filled, and under the able superintendence of Mr. Webley, the energetic Honorary Secretary, the hardworking Committee succeeded in arranging everything to the best advantage. Orchids, Belgian and Indian Azaleas, Rhododendrons, Amaryllises, Imantophyllums, Deutzias, Carnations, Roses, Cinerarias, Spiræas, Cytisuses, with Lachenalias, Hyacinths, and other bulbs were well represented.

The Hyacinths were a great feature in the display, these probably never having been shown in such numbers at any provincial exhibition. The Messrs. Garraway & Sons of Bristol alone staged, not for competition, about three hundred plants, these being generally good. The best competitive exhibits were to be found in competition for a valuable silver cup and other prizes presented by the Treasurer, Walter Derham, Esq. The groups were to consist of twenty-four Hyacinths and twelve Tulips, and three most creditable exhibits were made, the best being by Mr. W. Perry, gardener to H. C. Miles, Esq. His Hyacinth spikes were generally large and well formed, of the leading varieties. The Tulips were equally well grown, and comprised good examples of popular kinds. Mr. G. Marsh, gardener to M. Dunlop, Esq., was placed second with fair examples of both Hyacinths and Tulips; the third prize going to Mr. O'Brien, gardener to Mrs. R. P. King. In this collection the Tulips were rather weak, but the Hyacinths were excellent. There were five groups of twelve Hyacinths staged in competition for special prizes offered by J. D. Weston, Esq., the first prize going to Mr. W. Fox, gardener to Mrs. Erle, for a rather uneven group, the spikes, however, being good. Mr. E. S. Cole, gardener to W. Pethick, Esq., was a close second, the spikes of his specimens being more compact, and some were very good. Mr. Taggett was placed third with a creditable group. Messrs. Garraway offered prizes for twelve Hyacinths in four distinct shades of colour, and of these again there were five exhibitors, Mr. Webley securing the premier award, and in addition was adjudged the Knightian bronze medal of the Royal Horticultural Society offered for the best twelve in the Show, Class 1 being excluded. The group was an admirable one, and included excellent examples of the best varieties. Mr. W. Fox and Mr. Taggett were respectively awarded the remaining prizes, the latter's spikes being rather drawn. Mr. J. H. Vecn, Haarlem, offered prizes for twelve Hyacinths in six pairs, and for these three only competed. The best came from Mr. Taggett, and included creditable examples. Mr. G. Howe, gardener to Lewis Fry, Esq., M.P., was awarded the second prize, the third going to Mr. W. Fox. For the prizes offered by Mr. E. J. Burgess for twelve Hyacinths there were four competitors, Mr. Webley, Mr. W. Fox, Mr. G. Howe securing the awards in the order named. Messrs. Van Waveren & Sons, Holland, offered prizes for six Hyacinths. The first was awarded to Mr. H. Spry, gardener to G. F. Prideaux, Esq.; the second to Mr. W. Lintern, gardener to W. Butler, Esq. There were eight exhibits in the class for six varieties, the best, a good even lot, being staged by Mr. W. Fox, the remaining prizes going to Messrs. G. Howe and H. Spry in the order named, both staging well.

There were fewer classes for Tulips, and owing to the singularly mild winter the Show was really too late for them, and consequently the exhibits were fewer in number than usual. In the class for four pots of four varieties there were six competitors, Mr. Webley securing first honours with excellent plants; Messrs. W. Fox and C. Taggett receiving the remaining prizes in the order named. A similar number also staged in the class for four pots of the beautiful Vermillion Brilliant, all being good, Messrs. W. Fox, C. Taggett, and H. K. Ward securing the awards. Prizes were offered by Messrs. Brown & Co. for six pots of double Tulips, and for which there were four competitors. Mr. W. Fox staged among others good examples of Murillo and Tournesol, and was awarded the first prize, and was closely followed by Mr. C. Taggett and Mr. G. F. Owen. Several good examples of Polyanthus Narcissus were staged in the class devoted to them; Mr. W. Fox secured the premier award, the remaining prizes going to Messrs. O'Brien and W. Perry. Mr. C. Taggett was the successful exhibitor of Crocuses, and Messrs. W. Fox and G. Shelton, gardener to W. F. Waite, Esq., showed creditable pots of Lily of the Valley, and received the prizes as named. Amaryllises were well shown and proved very attractive; Mr. O'Brien easily secured the first prize with admirable specimens, Mr. W. Fox being a good second, and Mr. Taggett third.

Particularly attractive were the banks of plants in bloom, Orchids excluded, arranged in a space 14 feet by 4 feet. The premier prize, a silver cup, was well won by Mr. W. Perry, his group including good specimens of Anthurium Schertzerianum, Genetyllis tulipifera, Erica Devoniana, Chorozemas, Clematises, Amaryllises, Azaleas, double Cinerarias, Irises, Lachenalias, &c. Mr. W. Rye, gardener to J. Derham, Esq., occupied the second position with a fine well-flowered group; Mr. T. Bush securing the third prize for a creditable display. The first-prize collection of plants, also staged by Mr. W. Perry, was remarkable for the number of well-flowered Orchids it included, and this was worthily awarded the Knightian silver medal of the Royal Horticultural Society. Particularly good were the examples of a richly coloured form of *Dendrobium nobile*, *D. Pierardii*, *Cœlogyne cristata*, a good variety of *Cymbidium eburneum*, *Lycaste Skinnerii*, *Cattleya Warscewiczii* delicata, *Maxillaria Harrisonii*, *Odontoglossum Hallii*, *Phalænopsis Schilleriana*, and *Cattleya Trianæ*. Messrs. Maule & Son's second-prize group also comprised a few Orchids.

The best specimen Orchid, a well-flowered *Dendrobium Wardianum*, was staged by Mr. Perry, and the same exhibitor secured the premier award for four flowering stove or greenhouse plants, staging in this instance medium-sized well-flowered specimens of *Genetyllis tulipifera*, *Azalea triumphans*, *Erica Cavendishii*, and a freely-flowered example of a poor variety of *Dendrobium nobile*. Mr. E. S. Cole, gardener to W. Pethick, Esq., occupied second position with very creditable examples of *Eucharis amazonica*, *Pimelea spectabile*, an *Azalea*, and *Chorozema illicifolia*. Messrs. W. Rye, C. Bush, and W. Perry were worthily awarded the prizes as named for four specimen fine-foliaged plants, and Messrs. Maule & Sons took the first prize for forced hardy hardwooded plants, and also for *Rhododendrons*. The varieties of the latter were The Queen, French White, *Coronaria*, and Water's Victoria, all alike well flowered and handsome. W. Edwards George, Esq., offered prizes for four ornamental foliage plants, and these were well won by Mr. W. Rye, Mr. T. Bush, and Mr. W. H. Bannister, gardener to St. V. Ames, Esq., in the order named; and the two prizes for exotic Ferns were won by Mr. Bannister and Mr. W. Rye. The competition for the prizes offered by Mrs. W. H. Budgett for six Ferns suitable for table decoration, and by Mrs. G. Ames for six table plants, was close, the prizes in the first going to Messrs. J. Loosemore, gardener to W. Cooper, Esq., G. Howe, and W. H. Webb, as named; and in the latter, Messrs. H. Stevens, gardener to S. Budgett, Esq., E. S. Cole, and G. Howe. Such Ferns as *Adiantum gracillimum*, *A. Farleyense*, *A. cuneatum*, *Lomaria gibba*, *Pteris serrulata*, and variety *polydactala* were most popular, while in the latter class were many examples of *Croton Weismannii*, *C. pictum*, *C. Disraeli*, *C. irregulare*, *Pandanus Veitchii*, *Areca lutescens*, *Cocos Weddelliana*, Japanese Maples, *Dracæna Cooperii*, *D. congesta*, and *D. australis*.

Messrs. H. K. Ward, H. Spry, and W. Rye were the winners of the prizes offered by R. Hassel, Esq., for two *Azaleas* suitable for table decoration, the glass generally being particularly good. Mr. C. Taggett was the winner of first prize for four and also three *Azaleas*, Mr. T. Bush being second in one class and Mr. W. Perry in the other, the prizes in both instances being provided by the Victoria Rooms Committee. Mr. G. Howe secured the first of the prizes offered by G. W. Edwards, Esq., for a single specimen *Azalea*, the remaining prizes going to Messrs. Bush and C. Taggett. Great interest was taken in the well-filled class for six window plants in flower, for which prizes were provided. G. Brittain, Esq., Messrs. G. Howe, W. Rye, and W. Fox, were the successful competitors; and particularly good were the pots of *Lachenalia tricolor*, *Dielytra spectabilis*, *Pimeleas*, *Azaleas*, *Spiræas*, *Cyclamens*, and *Primulas*. Mr. G. Brittain provided a prize for a specimen *Rose* in pot, this going to Mr. E. S. Cole for a finely flowered plant of *La France*. The *Cyclamens* staged in competition for the prizes offered by Mr. J. Bastin were poor. Messrs. Maule & Sons took the first prize with freely-flowered specimens of an old strain. The *Primulas* were very fine, and were staged in good numbers in response to the offer of prizes by Mr. J. Prestidge. The prizewinners were Messrs. W. Rye, H. Webb, and W. Fox. *Cinerarias* were well grown, but the strains were rather poor, Mr. H. K. Ward taking the first prize. Mr. Webley, the Hon Sec., offered prizes for four tricolor *Pelargoniums*, and Mr. C. Taggett secured the first with creditable examples; and the same exhibitor was successful, followed by Mr. G. F. Owen, in a class for flowering Zonal *Pelargoniums*, for which the prize was provided by John Hobbs, Esq.

The vases of cut flowers were all lightly and tastefully filled, but the hand bouquets were much too heavy and closely packed, and most of the button-hole bouquets had too much Fern about them. Prizes for vases of flowers were offered by Mrs. G. W. Edwards, Mrs. C. W. Cope Proctor, and the Society also provided prizes for them. Messrs. E. S. Cole, T. Meakin, T. Pease, were the prizewinners in one instance, and E. S. Cole and T. Pease in the other. Mr. W. Cooper and Mr. E. S. Cole each won first prizes for bouquets. Mr. C. Fisher won the only prize offered for cut *Roses* with admirable blooms of *Devoniensis*, *Rubens*, *Cheshunt Hybrid*, *Madame Falcot*, *Catherine Mermet*, *Madame Sertot*, Mrs. Bosanquet, *Niphetos*, and the same gentleman also exhibited several excellent stands of *Roses* not for competition.

Little fruit was shown, but the first-prize dish of Pears, variety *Easter Beurré*, staged by Mr. M. Whitwell, was particularly good. Mr. C. Fisher easily won the first prize for Apples, and Mr. J. Gibson was awarded the first prize for both Grapes and Cucumbers. The local nurserymen kindly contributed plants for disposition in different parts of the building, and nothing was wanting to insure success on the part of the management. Unfortunately the sudden change to cold weather militated against the attendance on the first day, and the receipts did not equal reasonable anticipations.

THE PINK.

ITS CULTURE AND VARIETIES.

It is very gratifying to an old lover of this charming flower to see convincing evidence that it will ere long be again as great a favourite as it was twenty or twenty-five years ago. Growers can now have numerous and improved varieties to start with, or from which to select additions. The efforts of Pink-fanciers, culminating in the triumphs of that enthusiastic florist the last William Paul of Crossflat Nursery, Paisley, the outcome of a devotion to

the improvement of this flower extending unremittingly over nearly forty years, have reached a point which even Mr. Glenny would have pronounced almost perfect. At his death twelve months ago Mr. Paul left a collection probably unequalled in Britain in extent and excellence. He distributed upwards of twenty thousand annually over the three kingdoms, and the resources of Crossflat have to cope with demands increasing every year. As a hardy border plant, affording for three or four months with but little care a profusion of blooms of extreme loveliness and delightful perfume, unsurpassed for bouquets or glasses when cut, the Pink has no superior and but few rivals, while on the exhibition table nothing can excel in chaste beauty a stand of well-grown Pinks.

The appreciatory remarks of your correspondent, "A NORTHERN AMATEUR," in his notice of Crossflat, and my own subsequent contribution to your columns on the origin and development of the Pink in this district, have elicited gratifying inquiries as to its culture. These, presumably from readers of the Journal, may be most conveniently answered in its pages, and a very long experience ought to enable me to afford reliable information to those wishing to begin or to extend its successful cultivation. While giving directions as to the most approved mode of procedure I may premise that, thriving as it does in any good garden soil, gratifying results may be obtained from less elaborate treatment.

The Pink is perfectly hardy, and cuttings placed in boxes or in a shady border in the garden and covered with a handlight will strike freely; but the application of a little bottom heat is the most certain and expeditious method. Secure cuttings in June or early in July as soon as the young shoots can be had sufficiently strong. Use a spent hotbed with a very mild heat, and cover to the depth of 3 or 4 inches with a compost of two parts perfectly decomposed leaf mould, one part sand, and one part loam. In preparing the cuttings, all that is necessary is to remove the lowest pair of healthy leaves and to cut close to the joint with a sharp knife. Insert them firmly to the depth of an inch, give them a liberal watering from a fine rose, place the lights over them, and shade from the sun, which may be done most conveniently by brushing the glass with a mixture of whiting and water. Nothing more will then be required but keeping the frame close for eight or ten days, ventilating a little afterwards, and sprinkling occasionally in the mornings with clear tepid water. When the cuttings are rooted the sashes may be removed, and after ten days' or a fortnight's exposure the young plants may be placed out in rows 4 or 5 inches apart in a sheltered position till they are ready to be removed to the beds, which may be done any time in September or October.

In preparing the beds mix a quantity of fresh loamy soil with an equal quantity of very old cowdung, and after having removed the old soil to the depth of 1½ or 2 feet fill up with the compost, raising the beds somewhat above the surrounding surface, and making them rather higher in the centre to carry off superfluous water. Lift the Pinks with a good ball of roots, and plant in rows 12 inches apart and 14 inches between the plants, taking care to press them firmly down, as the winter frosts and thaws are apt to lift them out of the ground. It will be necessary in early spring to examine the beds and firm any plants that have been thus loosened. About the middle of March examine the beds again and fork the soil between the plants. In April give a mulching of old well-decayed cowdung.

During dry weather they require a liberal supply of water—not merely a surface watering, which does harm rather than good, but one that will reach the roots. The beds must be well drained, for although the Pink does not bear drought well, it does not agree with stagnant moisture at the root; but if the foregoing instructions be followed there will be little danger from this source. A little soot mixed with the water is very beneficial and helps to make them lace better. As it is difficult to mix the soot with the water put some in a bag and place it in the water barrel or a tub. Give also an occasional supply of other liquid manure.

Do not allow more than three, and on strong-growing varieties above four, flower stems to each plant. Tie these to neat stakes. The flower buds must be thinned out, leaving three or four on each stem. Some varieties are likely to burst the calyx. To prevent this obtain some small elastic bands, and place them round the middle or tie with a piece of matting or string. Shade the blooms from strong sunshine, which draws the colour out of the flower, also protect them from rain. I speak of treating them thus to obtain flowers in perfection of form and beauty.

No doubt it is best to plant out in autumn. Still, spring-planted Pinks as a rule do well. They may, perhaps, not be so strong, but in the case of robust-growing sorts I question if this be a disadvantage. The finest Pinks I ever saw in flower were planted in the end of March.

In order to have the best flowers the plants must be young. It is therefore indispensable, where this is a desideratum, to raise them from cuttings every season, as one-year-old plants produce the best blooms.

Appended is a list of very choice varieties from the collection of Mr. Paul, from which anyone may select with safety—Ada Louise, Adèle, Amateur, Besswing, Chastity, Christine, Col. Holms, Countess, Cythera, David Saunders, Dolly Varden, Donald McBean, Egeria, Elaine, Enid, G. Gibson, G. Kennedy, G. M. Donald, George White, In Memoriam, Ina, J. Carswell, J. Melville, John Ball, John Facer, Kittiwake, Lady Golightly, La Petite, Martha, Mary Gray, Miss M. Auberton, Modesty, Mrs. G. Dickson, Mrs. John Downie, Mrs. McLean, Myra, Ormara, Prince Frederick William, Sancho, Selena, Teaser, Tottie, Vanessa, Volunteer, Wm. Bruce, W. Edmestone, W. Murray, Wm. Paul, W. Stead, and William Watson.—GAVIN MCGHIE.

ROYAL BOTANIC SOCIETY.

MARCH 29TH.

A VERY bright and satisfactory exhibition was held in the corridor and conservatory at the Society's Garden, Regent's Park, bulbs being particularly numerous. Many of the exhibits were the same as those at Kensington on the previous day, and therefore do not need description; and further, owing to the brief time between the awarding of the prizes and our going to press, we can only give a summary of the chief winners and the general features of the display.

Hyacinths and Tulips were numerous and fine, especially the former. In the nurserymen's class these were of excellent quality, Messrs. Cutbush & Son, Highgate; Osborn & Sons, Fulham; and S. Hill, Forest Gate, securing the prizes in that order. In the amateurs' class Mr. J. Douglas, The Gardens, Loxford Hall, secured the leading prize with plants of good quality, Mr. H. Eason, gardener to B. Noakes, Esq., Highgate, taking the second position. The best Tulips in the nurserymen's class were those from Messrs. Osborn & Son, who were closely followed by Messrs. S. Hill and Cutbush & Son. Mr. Douglas was again first in the amateur class for Tulips, being closely followed by Mr. Boulwood, gardener to Captain Patton, Alpha House, Regent's Park, and Mr. Eason. Narcissi was admirably shown by Messrs. Osborn, S. Hill, and Gregory & Evans, Sidcup, in the open class, the plants being in excellent condition and flowering freely. Fine specimens of Lilies of the Valley were shown by Messrs. H. Williams and Son, Finchley, who secured the principal award, Gregory and Evans and Mr. Douglas following with smaller examples.

Stove and greenhouse plants were mostly small, but healthy and well flowered. Messrs. Peed & Son, Streatham, took the leading position, Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was a close second, followed by Mr. R. Butler, gardener to H. Gibbs, Esq., Regent's Park. Primulas were shown by Messrs. H. Williams & Son, J. Wiggins, gardener to H. Little, Esq., Uxbridge, and R. Butler, who were accorded the prizes in that order. Azaleas, though of moderate size, were well grown and flowered, especially the premier nurserymen's collection from Messrs. B. Peed & Son. Messrs. Cutbush & Son followed with smaller specimens. Mr. Wiggins had the best six specimens in the amateur class, Messrs. Wheeler and R. Butler staging larger plants, but rather loose.

Mr. Douglas, as usual, secured the premier award for six Deutzias, large specimens, profusely flowered, Messrs. Wiggins and Eason taking the second and third positions. Mr. Douglas also obtained the leading prizes for hardy plants and Primulas, both very pretty collections. Amaryllises were shown by Messrs. Wiggins and Butler, who were first and second respectively with good varieties. Cyclamens were remarkably well represented, the plants in all the leading collections being large and well flowered. In the open class Messrs. Wiggins, H. B. Smith, Ealing, and John Odell, Hillingdon, were the prize-takers. Mr. Wiggins was the only exhibitor in the amateur class, and was deservedly awarded the premier prize for handsome specimens. Mr. Eason had a fine collection of Lachenalias remarkably well flowered, and was awarded the chief prize.

The miscellaneous collections and groups were extensive, many new plants being shown and certificated, which will be described next week. Medals were awarded to the following exhibitors, who had the undermentioned groups—Messrs. J. Veitch & Sons, Chelsea, handsome groups of new plants and Hyacinths; Mr. B. S. Williams, an extensive collection of new and rare plants; Mr. W. Bull, a collection of new plants; Capt. Patton, a group of Hyacinths and Tulips; H. Williams & Son, large group of Hyacinths; J. Odell, Cinerarias and Cyclamens; Cranston's Nursery and Seed Company, Hereford, Maréchal Niel Rose blooms; Gregory & Evans, Pelargoniums; J. Carter & Co., High Holborn, a fine group of Hyacinths and Azaleas; Lane & Son, Great Berkhamstead, Rhododendrons and Azaleas. H. B. Smith had a handsome group of Cyclamens; Cutbush & Son, a large group of Tulips, Hyacinths, and Azaleas; W. Rumsey, Waltham Cross, seven boxes of Rose blooms; and Osborn & Son, a large group of Hyacinths and Tulips.

The weather unfortunately proved rather unfavourable, but there was a very good attendance during the afternoon, several distinguished visitors being present. The Show was one of the largest the Society has held thus early in the season.



KITCHEN GARDEN.

To obtain Broccoli for use next spring seed should now be sown; Cooling's Matchless, Leamington, Lauder's Goshen, and Model are good varieties to afford a succession from March to May inclusive. A successional sowing of Cauliflower seed should also now be made; Walcheren and Veitch's Autumn are suitable sorts. The principal sowing must also be made of "winter greens"—i.e., Cottagers' and Curled Borecole, Drumhead and Curled Savoy, Brussels Sprouts for late use, and Cabbages for autumn and early winter use—Carter's Heartwell and Nonpareil being good kinds. Sow Turnip and Spinach seed occasionally, also Lettuce, Alexandra Cos and Malta being excellent for summer use. Sow Radish and Mustard and Cress according to the demand. The principal sowing of Carrot seed—Intermediate and Red Surrey—should now be made; and between now and the middle of April Beet, Salsafy, and Scorzonera, the last two in some places being much esteemed, and should be given deep rich soil. The drills for the root crops above named should be 12 to 15 inches distance, and the plants thinned to about a foot apart.

Plant suckers of Globe Artichokes on well-prepared ground 3 feet apart, in rows 4 feet apart, placing two or three good suckers together. These, if well attended to with water, &c., will afford a fine autumn supply. The old stools should be well thinned, leaving four to six of the best suckers to each. Planting second early and late sorts of Potatoes must be proceeded with and completed as soon as possible. When Seakale has been forced in the open ground the dung and pots should be removed as the crop is gathered, cutting down any unsightly or straggling crowns, shaking over the crowns a little of the lightest of the fermenting or covering material as a protection from frost until fresh growth has commenced, when it should be cleared from the crowns and forked in between the rows. Seakale roots which were cut into lengths of 4 to 6 inches as before advised must be planted in well-prepared ground in rows a foot asunder in rows 18 inches apart. Where seedling plants are preferred sow at once in drills about the same distance apart as advised for planting. Plantations of Rhubarb which have been disturbed through lifting roots for forcing should be filled at once. It is usual to reserve the old roots that have been forced, laying them in until they are divided and planted, which we do not advise, as the roots are so weakened by the forcing process as to require two or three years' growth to regain their vigour, whilst divisions of roots from the outside stools make as much growth in a single season. Roots of Rhubarb, as also Asparagus intended for early forcing next winter, should not be gathered from at all this season, but allowed unrestricted growth, so as to ensure an early and well-matured growth.

FRUIT HOUSES.

Vines.—Where it is intended to plant Vines the borders should at once be prepared, so that the planting may be performed when the Vines allowed to start naturally in a cool house have made shoots a couple of inches long. The upper 3 or 4 inches of a pasture where the soil is a medium-textured loam, inclined to be sandy rather than clayey, is excellent for Vines, to which add one part in ten of old mortar rubbish, and a twentieth of charcoal, with a fortieth part of crushed bones, the whole being well incorporated. The bottom of the border should be concreted if the under strata be unsuitable from being wet, and it should efficiently drained with 3-inch pipes having proper fall and outlet. A foot thickness of rubble should be provided for drainage, covering this with a layer of turves grass side downwards, and then 30 inches depth of the prepared compost moderately firm. A 6 feet width of border will be sufficient in the first instance, and should be (where it is intended to let the roots extend both into outside and inside borders) entirely inside. If the Vines have been cut back in the winter and grown in a cool house, the buds will probably now have started and the shoots be the length

indicated above, in which case they should have every portion of soil removed, preserving all the fibrous roots. The soil of the border having been made to the desired height, place the Vines in position, spreading out the roots flat, and cover with 4 to 6 inch depth of soil, working it well about them, and give at once a good watering at a temperature of 100°, and the surface of the border with a couple of inches of short dung. Syringe two or three times a day, but do not attempt to force growth immediately after by a close warm atmosphere, as a high temperature before new roots are made is injurious. Young Vines that were planted last spring or summer will be breaking naturally, and as soon as the buds are about half an inch long they will be much assisted by a little fire heat, especially on cold nights, a temperature of 55° being sufficient. Remove all buds except one at each break, and do not take more than a couple of bunches per Vine this season, but supernumeraries may be fruited heavily.

Melons.—The earliest plants having set a crop on the first laterals the fruits should be thinned as soon as they have swelled to the size of a hen's egg, leaving two to four according to the vigour of the plants, as the cropping has much to do with the size and quality of the fruit. When the fruits are swelling give a thorough soaking with tepid weak liquid manure, and earth up the roots with rich compost, ramming it down firmly. If but one or two fruits on individual plants take the lead in swelling remove them at once, but as very early Melons are most esteemed it will generally be advisable to forego a full crop in their favour. Allow a moderate extension of the laterals, but do not overcrowd the principal foliage, and do not allow growth to be made which must at a later period be removed in quantity. Plants setting fruit will require less moisture both at the roots and in the atmosphere, fertilising the female blossoms every day, nipping out the points of the shoots at the same time a joint above the fruit. In pits and frames more moisture will be necessary there as well as in houses; but whilst the syringe should be used moderately about 3 P.M. in houses, it is advisable for the present to avoid wetting the foliage of those in frames more than can be helped. Apply good thick linings to pits and frames where the bottom heat is found to be on the decline, afterwards being careful to allow the escape of rank steam. Allow but two shoots from each side of the plant for training to the back and front respectively, removing every alternate lateral. The laterals will show fruit at the first or second joint; if not, stop them at the second, and the principal shoot should be stopped after it has advanced two-thirds of its distance. Sow seed for succession.

Cucumbers.—Assist plants in bearing frequently with weak tepid liquid manure, and an occasional dressing over the roots with rich lumpy compost. Damp available surfaces about 7.30 A.M. and 3 P.M., the foliage being gently syringed early on warm afternoons, the evaporation troughs being regularly charged with liquid manure. Shading will be necessary when the sun is powerful for an hour or two at midday. Stopping, training, and trimming the old growths will need attention. Maintain the heat in pits and frames by good linings, training and pegging out the growths, and being moderate in the application of water over the foliage.

PLANT HOUSES.

Greenhouse.—Camellias have flowered earlier than usual, and the plants are starting into growth, which should be assisted with plenty of moisture at the roots and in the atmosphere, surface-dressing the soil with old cowdung, or apply a little weak liquid manure. Any requiring larger pots must be shifted without delay, being careful to disturb the roots as little as possible. Shade with some light material in bright weather. Azaleas are producing their trusses of bloom, and those required for late flowering must be removed to a house with a north aspect, where they will advance more slowly. A somewhat moister and warmer atmosphere will assist those producing their flowers. Any plants of other kinds required to bloom later than their usual time should be placed where they will be cooler and receive less sun, but they must not be shaded, or only by a thin material, at the hottest part of the day,

Ferns are now growing fast, and must be well supplied with water at the roots, shading from powerful sun. Tree Ferns should have

their stems syringed twice a day, care being taken that they do not lack moisture at the roots, for if the young fronds receive a check for want of water they will not develop satisfactorily.

THE BEE-KEEPER.

BEE-KEEPING FOR BEGINNERS.

(Continued from page 203.)

FEEDING BEES.

EXPERIENCED and successful men in apiculture know that bees cannot be well managed in Great Britain without feeding them with artificial food at certain times in unfavourable seasons for honey gathering, and that, generally speaking, the greatest results are reached by those who give careful attention to this. In times of general loss amongst bees those who feed well suffer less than most other bee-keepers. Even in years of prosperity a little feeding at certain times is helpful. It is no small advantage to have bees contented in wet weather while they are filling their combs with brood, and for a swarm newly hived to have a good commencement in comb-building. All this can be had by stimulative feeding at comparatively little expense of money and labour. The story of the value of manure in horticulture and agriculture has never been fully told, neither has the value and advantage of artificial feeding in apiculture been fully unfolded.

The best possible artificial food for bees is made of good sugar and pure water, mixed at the rate of 1 lb. of sugar to one pint of water, and boiled for half a minute of time. Good ale, wine, and other matters mixed with the syrup are unnecessary, and when used do not improve it. Syrup made of good sugar and pure water is healthful food for bees. On it they can live and be well both in summer and winter, and from it they can secrete wax and build combs. Beginners should know and remember that bees can be made to fill a hive with combs from sugar syrup alone, and that bees can live and be healthy a long time without anything to eat but good syrup. I cannot say with any degree of certainty how long a swarm would live on sugar alone, for I have never put the question to the test of actual experiment, but I will here state that I believe that if a swarm of youthful bees were hived in September, and placed at once in a dark cellar and there fed on good syrup made from 12 or 16 lbs. of sugar, the bees would build combs and live in health for six months without a taste of pollen or peameal. I have said "youthful" bees, for the span of a bee's life is only nine months. Bees three months old would die at the end of six months wherever placed and however fed. Strong statements have been made by some honest writers that bees cannot live without some farinaceous food, either pollen or wheaten flour or peameal, but no evidence of fact or experiment that I am aware of has been produced in support of such statements. Pollen or other farinaceous food is used in great quantities in rearing brood, and when bees cannot obtain enough pollen from flowers during the breeding season they will readily take peameal or wheaten flour if sprinkled on wood shavings near their hives; indeed, I have seen bees following bakers' carts on the streets, and hovering over them as they halted to deliver bread. But it should be known that pollen is not scarce in the fields of Great Britain, and that hives, generally speaking, contain too much of it, which occupies cells that would be more usefully employed as cradle cells.

There are various ways of feeding, and different kinds of instruments are used in this work. Some bee-keepers feed bees on the tops of the hives, and some feed from below. Both modes answer well. Some hives are made with level floorboards, the doorways cut out of the hive. With such hives tin and wooden troughs about 1 foot long and half an inch deep are often used in spring. The troughs are filled on the flight boards, and gently pushed through the doorway into the hive. This mode is adopted in the spring months to stimulate the bees and queen into activity by those who feed from below. Those who feed on the top use wide-mouthed bottles, the mouths of which are covered with calico or other materials, which prevent the syrup running out too fast when inverted and placed over the crown holes of hives. The bees take the syrup as it oozes through the calico. Again, some use vulcanite pierced with small holes in feeding their bees from the top. The inverted bottles are placed on the vulcanite, and the bees catch the syrup as it percolates through the pierced holes.

What is termed "The Lancashire Feeder" is a useful instrument for top feeding. This feeder is 8 inches wide and about 4 inches deep, with a tube or cylinder in the centre of it 3 inches wide. This feeder is made of tin, and has a bottom outside the cylinder, and, therefore, is a kind of circular dish or trough capable of holding two

or three quarts of syrup. The tube or cylinder is without bottom, so that the bees can pass through it, and get the syrup from the trough and carry it down into the hive. A thin wooden float with holes pierced in it is used to prevent the bees being drowned. When these feeders were first used they were found to be defective and very destructive of bee life. The bees found their way to the syrup, but were unable to carry the syrup up the smooth sides of the cylinders, fell back, and were drowned in the trough. It was suggested that the cylinder be covered with wire gauze, so that the bees would have foothold, and be able to travel upwards and downwards with loads. This has been done, and these feeders are very useful and convenient. When a Lancashire feeder with sugar in the trough is first placed on a hive the bees seem a little bewildered in their efforts to find their way to the syrup, but are easily led to it by a track or trail of the syrup from the bee nest to the trough. Once there they find their way back, and need no more guidance by the way. No objection can be offered to top feeding.

We feed from below with feeders and dishes of various kinds. For feeding young swarms we use common flower pot saucers filled with chips of wood, or hay or straw cut short. These saucers are placed on the centre of the floorboards and filled with syrup; the swarm hives are placed over the syrup on the boards. Arrangements are made for refilling them from the outside by a three-quarter-inch gaspipe pushed through the sides of the hives. Thus the dishes or troughs or saucers can be refilled without touching the hives or disturbing the bees. We have several boards with large troughs fixed in them. A circular hole 10 inches in diameter is cut out of the board. A tin trough 1½ inch deep is made to fit the hole and drop into it; thus the rim or ledges of the trough rest on and are level with the board. By connecting a tin tube 6 inches long to the trough and to a small funnel at the other end we have a feeding board that cannot be surpassed for convenience and usefulness. By filling the trough with chips of wood or by having in it a pierced float any hive may be placed on it. Our feeding boards hold three quarts of syrup each (6 lbs.), and we have seen a swarm take 6 lbs. out of a trough in three years. Both the Lancashire feeder and the feeding board just described if properly made are perfect.

As to the times and seasons of feeding bees little need be said. We hold that in ordinary seasons a halfpennyworth of good syrup given to a hive every day throughout the month of March is well-spent money. This is called gentle stimulative feeding, and it almost always promotes health and prosperity. If the weather be fine during the fruit blossom season this gentle feeding is discontinued; indeed, bees should not be fed while they are storing up honey. Care should be taken during the spring months to avoid giving bees more than is required for the daily wants of hives. Care should also be taken to prevent syrup being mixed with pure honey while being stored. Nobody likes honey deteriorated.

Feeding occasionally during the summer months while weather is unfavourable may be practised with advantage, not to be stored up, but, as we already said, to encourage breeding, and keep the bees in good trim for future work and activity.

Autumn feeding is practised when bees have not food enough for winter. Some seasons bees cannot keep themselves and store up honey enough for winter use. In very favourable seasons for honey bees gather far more than they can eat, and more than is necessary for winter use. In such favourable seasons we take honey—all the honey from every hive in the apiary—put the bees into empty hives, and feed them into stocks in about sixteen or twenty days; 3 or 4 lbs. of syrup are given to each swarm every night. A little careful attention to the art of feeding bees will soon make beginners experts, and the more they put in practice this art the more clearly will they see its importance.—A. PETTIGREW.

TRADE CATALOGUE RECEIVED.

Rawlings Brothers, Romford, Essex.—*Catalogue of Dahlias.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—Owing to the great pressure on our columns several letters relative to Roses from cuttings, with other valuable articles, must stand over to a future issue. All letters suitable for publication that are obligingly sent to us will appear as soon as possible, and they are not the less valued or useful because not inserted immediately they are received.

Address (Cranfordian).—If you write to Messrs. Perkins & Sons, Park Nurseries, Coventry, you can obtain the particulars you require.

The Hardest Flowering Plant (Annie).—We cannot decide this, but the *Ranunculus glacialis* was the only one left when M. du Chaillu visited the snow line in Lapland. The Lichens disappeared at about 2000 feet above the snow line.

Gardeurs' Year Book (H. M., Paris).—The issue to which you refer has long been out of print, and we do not know of any other means of obtaining a copy than by advertising in the Journal, and even this might not prove successful, as we find it difficult to procure back numbers of this publication.

Peach Trees Eaten (A Subscriber).—The insects you have sent are copper-coloured weevils, *Curculio cupreus*, which are very destructive. Continue your practice of sedulous handpicking, and destroy as many as possible. See also our reply to a correspondent whose Peas are attacked with another *Curculio*, and try the preventive measures there suggested.

African Marigolds (Homo).—You are perhaps not aware of it, but your letter is clearly an advertisement. We do not say that your object was to benefit any particular individual, but that would be the effect of the letter if published, and our readers would derive no advantage unless seed of the strain you mention is to be distributed gratuitously. If it is to be thus disposed of we will publish your letter without charge, and append to it the notification indicated; but if the seed is to be sold, the terms for advertising it can be obtained from the publisher.

Nitrate of Potash—Muriate of Ammonia (Lincoln Engine).—Although the reaction you refer to takes place, it is of little or no practical value. Both substances are valuable manures, either for making liquid manure or for sprinkling on the surface of the ground between rows of plants in showery weather. For plants in pots one teaspoonful of either, singly or both mixed, will be sufficient in a gallon of water will be quite strong enough, and then should only be given to plants that have well rooted in the soil they are growing in. Never give liquid manure to dry soil.

Pea Leaves Scolloped (Rev. W. A.).—The leaves sent have been eaten by the Pea Weevil, *Curculio lineatus*. In Scotland it is commonly called "the Cuddy," or Donkey, from its grey colour. The whole body is grey, and marked with black lines; the antennae reddish; the eyes black. They survive the winter sheltered beneath moss, &c., and in bad weather at all seasons retire under stones, only to reappear with the sunshine. The beetles must be carefully sought for and destroyed. In all probability the soap and paraffin mixture recommended to a correspondent last week would render the leaves distasteful to the insects, and an infusion of quassia would have the same effect. This is made by boiling a quarter of a pound of quassia chips for twenty minutes in a gallon of water, and then adding three more gallons of water before using.

Sulphate of Potash (F. M. S.).—Sulphate of potash is an almost insoluble salt, and is not readily assimilated by plants. It is generally considered that before it is taken up by the roots of plants it is changed in the soil to the carbonate, in which state it is absorbed. This change takes place in the soil slowly, hence the crops a year or more after its application frequently derive more benefit than the crop to which it is applied. Sprinkled on fermenting manure (farmyard) this change takes place much more rapidly; still a month or two should be allowed to elapse before the manure is used. Read the article again to which you refer. You seem to have missed the main points. We never recommend a dealer. The reason should be obvious.

Refuse Heaps (Idem).—Your definition of refuse is rather vague. If you mean prunings there should be no great difficulty in having them dry enough for burning, especially at this season, and the resulting ashes you would find valuable. If your heap consists of such material as cabbage stumps, wet leaves, and dead plants from the flower garden, you should turn it over and mix in newly slaked lime liberally. This will not only hasten its decay, but greatly add to its value. If the ammoniacal liquor of the gasworks can be easily obtained it will serve the same purpose. It will kill any living matter, such as the roots of Brussels Sprouts, Broccoli, &c., causing the heap to ferment, and rendering it richer by adding ammonia. When such material must be disposed of at once it should be chopped small and trenched into the ground.

Maréchal Niel Roses in Vinery (W. H. B.).—We have grown this Rose in the manner you suggest, and gathered numbers of fine blooms, and the Grapes were also satisfactory; but they were not, you must understand, grown for exhibition, and large bunches were not required. If you are satisfied with bunches ranging from 1 lb. to 2 lbs. in weight you may easily produce them and hundreds of blooms of Maréchal Niel too, provided the border and general management are satisfactory. Soil that will produce good Grapes will grow good Roses, affording top-dressings and liquid manure as may be needed to induce healthy growth. If your object is to secure very fine Grapes you had better not train the Rose growths between the Vines, but sacrifice a Vine at the end of the house next the wall; you could then cover the wall with Roses and a portion of the roof too. Only strong well-supported plants will produce such strong and rapid growths as those referred to at Burghley; but with good culture there is no difficulty in producing vigorous plants, and then the plan described on page 238 is the best for growing this fine Rose under glass. The other Rose to which you allude is probably Rêve d'Or, and you cannot do better than train up young shoots as you suggest, and if these are kept clean and healthy they will in due time afford abundance of flowers.

Snails on Ferns (E. F.).—If you found the small snails on the plants they are no doubt the cause of the injury. Try syringing a plant with a solution of paraffin and soft soap, prepared as described to a correspondent, "H. N.," in our last issue on page 247. If this does not injure the fronds, and we do not think it will, the other plants can be similarly treated. The dressing will render the fronds distasteful to the snails; these, however, should be carefully removed.

If it be well also to remove a portion of the surface soil give a sprinkling of soot, and then add fresh soil containing no snails. A good mode of preventing snails ascending the pots is to stand each plant on a small pot inverted in a saucer always kept filled with water. This will also be conducive to the health of the plants.

Tuberoses (Amateur).—There is great danger in overwatering before growth takes place and roots are produced. There is no better and safer plan for amateurs than to pot the bulbs in healthily moist soil—that is, neither so dry on the one hand as to crumble, nor on the other to “cake” and retain the finger marks clearly when grasped—and then to plunge the pots in cocoa-nut fibre refuse or ashes, and cover them an inch deep in a frame or greenhouse. No water will then be needed until the growths protrude through the covering. The pots must then be removed to a light position, and water given to keep the soil regularly moist.

Potting Azaleas (C. D.).—On page 243 of our last week's issue you will find sound instructions on the culture of Indian Azaleas. As you neither state the size of your plants nor the pots in which they are growing, it is impossible for us to say whether they need repotting or not. We can only say it is easy to err by overpotting, while it is not difficult to keep even large plants healthy in small pots provided they are sufficiently yet carefully watered, giving them once a week weak and clear soot water, or liquid manure made from cow's or sheep's dung; but such aids are only needed when the pots are crowded with roots. If you report the balls must not be reduced. The same remarks apply to Ghent Azaleas, only a third of sandy loam may be added to the peat. If they need potting it must be done a week after the plants have flowered, taking care that the seed pods, if any, are removed. The soil must be made firm.

Grafting Fruit Trees (J. H. B.).—You are unquestionably “left in the lurch,” and we are not sure that we can extricate you. Unless, however, you are only a very new reader of the Journal you have only yourself to blame, for it has been repeatedly stated that the scions must be cut from the trees several weeks before the time for grafting, and inserted in soil in a cool position to arrest growth and enable the stocks to be in advance of them. Had you applied to us a month ago we could have complied with your wish, but we doubt if it is possible to do so now in a manner that will be either satisfactory to you or ourselves, but the subject shall have our prompt attention.

Tea Roses (G. C., Derby).—They do not succeed where the air is not pure, but as your plants have made strong growth the blooms would probably be more satisfactory if you were to cover your beds with tiffany affixed to a framework such as you could easily make. We know of no book giving the information you require. You would obtain useful knowledge by examining a few houses in your district, in which there must be several. A small boiler and pipes would be the best for heating, but a well-constructed flue of earthenware pipes would do.

Poultry Manure (Anxious).—This is an excellent manure, and according to Dr. Anderson, Professor of Chemistry, Glasgow University, the analyses of a sample gave the following results. The dung was collected as fresh as possible:—

Water	60 88
Organic matter and ammoniacal salts	19 22
Phosphates	4 47
Carbonate of lime	7 65
Alkaline salts	1 09
Sand	6 69

100 00

Ammonia	0 74
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Phosphoric acid in the alkaline salts equal to 0.15 phosphate of lime	0 07
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Calculated dry, and after deduction of sand, hens' dung had the subjoined composition:—

Organic matter and ammoniacal salts	59 26
Phosphates	13 79
Carbonate of lime	23 58
Alkaline salts	3 37

100 00

Ammonia	2 27
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The relative values of different manures can only be determined on the crops to which they are intended to be applied. You can obtain what you require from manufacturers of, or large dealers in, artificial manures who are established in the market towns of agricultural districts. We cannot do anything so invidious as to recommend any particular vendor, as our doing so would be manifestly unfair to others equally reputable.

Aralia Sieboldi (Flora).—This is a distinct and handsome evergreen shrub which has proved hardly in the south of England, but is employed for conservatory, balcony, and room decoration. It has large deeply cut Fig-like foliage of a bright shining green colour. There is also a variegated form which is very attractive. The story you have been told respecting this plant is simply absurd.

Chrysanthemums (C. E. C.).—You ought to have protected the plants from slugs with soot and lime, or adopted some other measures to have prevented their being eaten. The plants will yet make fresh growths if the slugs are kept from them, not otherwise. No varieties are less liable than others to the attacks of green fly. With care and good culture the attacks may be prevented. All flower well in the autumn, and should be grown in the open air in the summer. You will find notes and a selection of varieties in another column. Cover the Gladiolus corms about 3 inches deep, surrounding them with sand or crushed charcoal.

Peach Flowers Falling (F. C.).—The trees have been kept much too dry at the roots. We doubt if you properly understood the instructions to which you refer, and certainly you have not followed them correctly. The mould on the stems is indicative of the house having been kept too close. Some varieties produce more pollen than others, hence the difference to which you allude. The house ought not to be kept quite from 4 P.M. to 9 A.M. The air has, we suspect, been too moist, and undoubtedly the roots too dry for the welfare of your trees.

Fruit, Bees and Poultry (Worker).—If the district is favourable for bees and fruit culture we have no doubt “a good living could be made off three or four acres of good old pasture land,” but it could not be done without sound practical knowledge and hard work. We are unwilling to advise you to enter on such an undertaking solely on the knowledge you can obtain from books; indeed, there are no books that give the precise information that is requisite for attaining success in an enterprise of this nature. You must at the least inspect

carefully the work of others who are engaged in a similar occupation, but it would be far better to obtain employment under those who have proved successful. If you are not prepared to do this you must be guided by your own small experiments, by the results of which you will be able to determine whether it will be advisable to extend your practice or not. There is a station at Isleworth, on the South-Western Railway, which can be reached in about half an hour from the London terminus at Waterloo.

Soil for Vines (Yorkshire Curate).—You ask for a recipe for making a Vine border, and at the same time say you can only procure peat, old garden soil, and roadside trimmings off a poor gravelly soil. In the first place the peat you have sent is of no use for the Vine border, nor for kitchen garden crops generally, but it will do for mixing to the extent of a third or a little more to the soil for an Asparagus bed. Procure all the roadside trimmings you can and saturate the heap with sewage or such other liquid manure, not omitting urine, you can obtain. Turn the heap over once or twice, applying liquid manure each time. If you have any rubbish with which you can make a large fire do so, and when you have a good body of fire cover the pile with as much garden soil as possible, in order that it may be burnt or scorched; then mix the scorched soil and ashes with the saturated turf, adding also lime rubbish freely, say to the extent of one-tenth of the bulk, and if you can further add a bushel of half-inch bones to every two cartloads of soil the compost will be improved. This is the best advice we can give you under the circumstances, and a border thus made would, we think, with manurial top-dressings, grow good Grapes. Wire the house horizontally, stretching the wires not less than 15 inches from the glass; 18 inches if you have head room, and 10 inches apart.

Heating a Greenhouse (Limerick).—There are more than one reason to be given for the apparatus not heating satisfactorily. The most common cause of failure or imperfect circulation of the hot water is due to air in the pipes. This may arise from the flow pipe not having a slight rise from the boiler until the highest elevation or level it is considered desirable for the flow pipe to have when the return is made to the boiler, and this return pipe must decline to the boiler, which will cause the air, if any, to rise to the point highest in the pipes and escape by an air pipe; the water will then circulate and heat satisfactorily. The circulation is often impeded by depression in the pipes, which causes air to lodge often to the extent of separating the water in the pipes, and the circulation then ceases. Another and not infrequent cause of the apparatus not working well is having the flow and return pipes entering the boiler on nearly the same level, which causes the heated water to pass up the return pipe in but a slightly less degree than up the flow, and the circulation is not only sluggish, but dangerous in the case of hard firing, and extremely wasteful of fuel. However, as you have not given any particulars we cannot do more than allude to probabilities, whereas had a more detailed account been given, and a rough sketch showing the position of the pipes, their course, and connection with the boiler, we might have been able to help you out of the difficulty and given a more pointed answer.

Names of Fruits (W. R. C.).—1, Blenheim Pippin; 2, 3, and 5, Duck's Bill; 4, not known. (R. C.).—The Apple is, we think, the new Northern Greening, and is a very useful variety.

Names of Plants (A. C.).—Alonsoa incisifolia. If all correspondents who sent sprays of plants for name in letters would place the specimen between two leaves of a Zonal Pelargonium as you did they would save us much trouble and themselves some disappointment.

Honey, not Swarms, Wanted (Clifton).—Your hive, 12 inches square, will probably be ready to swarm early in May. By enlarging hives swarming is always delayed, and often prevented. Your box 4 inches deep should be placed on your hive as a super some time in April, about three weeks before the time of swarming, or in other words as soon as the combs of the hive are covered with bees, and if some empty comb or “artificial foundations” be fixed in the super the bees will enter it at once. But as your hive now is a small one an additional box 4 inches deep will not be enough to prevent swarming. A second box equal in size will be required, and this may be placed either above or below; if placed below it will give the bees more room for breeding in, thus making the hive stronger, and likely to send more honey to the super. But the box going below should have its crown hole very large, or, better still, without a top or crown at all, thus making the hive larger without partition board. If the season of 1882 be a good one for honey another super 4 inches deep may be required and filled. In using wood supers it is well to have small windows or peepholes in them so that we may know what is being done in them and when they are full, and also to place a sheet of paper on the crowns of hives to prevent the combs of supers from being fastened to them. In hot summers the passion of bees to swarm becomes in some instances a mania, and then they disregard all kinds of enlargements. In favourable seasons for honey, hives supered and managed as suggested above will not only fill their supers but be pretty well filled themselves by the end of the season. Your other hive will probably be ready for supering at a later date; on it try a larger super with some tempting guide comb or artificial foundations in it.

COVENT GARDEN MARKET.—MARCH 29.

WE have been well supplied with all classes of goods, and a moderate trade has been doing at previous prices. Early fruits and vegetables show a downward tendency.

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes	dozen	2	0 to 4	Mushrooms	punnet	1	0 to 1 6
Asparagus	bundle	9	0	Mustard & Cress ..	punnet	0	2 0 3
Beans, Kidney	£ 100	2	0 2 6	Onions	bushel	3	6 0 5
Beet, Red	dozen	1	0 2 0	Pickling	quart	0	0 0 5
Broccoli	bundle	0	9 1 6	Parsley	doz. bunches	3	0 4 0
Brussels Sprouts ..	½ sieve	1	3 1 6	Parsnips	dozen	1	0 2 0
Cabbage	dozen	0	6 1 0	Potatoes	bushel	2	6 3 6
Carrots	bunch	0	4 0 6	Kidney	bushel	3	0 3 0
Capsicums	£ 100	1	6 2 0	Radishes	doz. bunches	1	0 0 6
Cauliflowers	dozen	1	0 3 6	Rhubarb	bundle	0	4 0 6
Celery	bundle	1	6 2 0	Salsify	bundle	1	0 0 0
Coleworts	doz. bunches	2	0 4 0	Scorzonera	bundle	1	6 0 0
Cucumbers	each	0	9 1 0	Seakale	basket	1	0 1 6
Eradive	dozen	1	0 2 0	Shallots	£ lb.	0	3 0 0
Fennel	bunch	0	3 0 0	Spinach	bushel	3	0 0 0
Garlic	£ lb.	0	6 0 0	Tomatoes	£ lb.	1	0 2 0
Herbs	bunch	0	2 0 0	Turnips	bunch	0	4 0 0
Leeks	bunch	0	3 0 4	Vegetable Marrows	each	0	0 0 0

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	0 to 6	Lemons.....	½ case 12	10 to 16	0
Apricots.....	doz.	0	0	Melons.....	each	0	0
Cherries.....	¾ lb.	0	0	Nectarines.....	dozen	0	0
Chestnuts.....	bushel	16	0	Oranges.....	¾ 100	4	0
Currants, Black..	½ sieve	0	0	Peaches.....	dozen	0	0
„ Red.....	½ sieve	0	0	Pears, kitchen ..	dozen	1	0
Figs.....	dozen	0	0	dessert.....	dozen	0	0
Filberts.....	¾ lb.	0	0	Pine Apples.....	¾ lb.	1	6
Cobs.....	¾ 100 lb.	50	0	Strawberries.....	per oz.	0	6
Gooseberries.....	½ sieve	0	0	Walnuts.....	bushel	7	0
Grapes.....	¾ lb.	6	0				



POULTRY AND PIGEON CHRONICLE.

CROSS-BREEDING HORSES.

(Continued from page 249.)

WE have previously shown that the number of first-class horses annually brought to maturity is very small, particularly for racing purposes. How can we explain such a falling-off that the offspring, probably to the extent of 70 per cent., should prove inferior to both the sire and dam? The answer may be found in the fact, that although our first-class racehorses are large and powerful animals, yet they are descended from ancestors considerably smaller than themselves, and Nature makes a constant effort to return to the original type. But for this natural law there is no telling what size our thoroughbred horses might reach, for the constant effort of the breeder is to raise large colts, and it is almost an axiom with most men that, although a good little horse is very well, a good large horse is much better.

Our previous remarks have referred to horses of full size and their advantages, but we now propose to consider if ponies can be made profitable animals to breed, more especially on the moors, hills, and waste lands which are at intervals to be found scattered over all England, but particularly in the northern and western districts. It is there a matter worth the attention of the home farmer, who under his management has frequently a portion of land so poor and sterile that it can never pay for cultivation, and is frequently but ill adapted for the rearing of sheep or cattle. We are now alluding to such tracts of bog and moorland where in late years sheep and cattle have contracted the fluke rot, and been lost to the owners almost entirely by death or premature slaughter. The waste hill lands are often the home of a race of ponies, or Galloway cobs, &c.: for in every district of the character just alluded to the pony is found rough, shaggy, small, and for the most part poor, ragged-hipped, &c. Not alike, however, in every district, for the Highland sheltie is not like the Welsh pony. This, again, differs from the Exmoor, and the Exmoor from the New Forest pony. The variations are caused chiefly by the climate, soil, herbage, and other influences, such as the prejudices of the breeders, many of whom fancy that they possess the best breed of ponies in the kingdom, and in this way much improvement has been prevented.

Examples have been found where the introduction of the Arab blood has been of great service, and has wonderfully influenced the race of ponies both as regards size and all the requisite qualities. We were informed that in the New Forest district a gentleman who came from India about twenty-five years ago brought with him some splendid Arabian stallions which he had used for the turf at Bombay, and we are further informed that these animals were some of them wonderfully perfect in shape and docile, so much so that they were frequently used as saddle horses by the

ladies, and proved equally quiet and good-tempered as geldings in ordinary use as riding horses. These circumstances contributed greatly towards recommending to gentlemen and owners of the ponies in the New Forest district the use of these Arab stallions for crossing the pony mares. The progeny, we are informed, exhibited an improvement and value of the colts far beyond the most sanguine expectations, and the whole blood of the Forest-bred animals has since been sought for more than at any former period. The general result has been, that instead of the small animals of former times, many beautiful cobs up to 14½ hands in height have been procurable from the animal draft, or periodical sale of the improved stock reared in the Forest.

With reference to the Exmoor and Welsh ponies, they are said to be truly descended from the horses which, tradition tells us, called for the encomiums of Caesar (as no doubt was the almost extinct pack-horse). As they have in a great measure lived a purely natural life, many of the mares never having been haltered, we must consider that we get them now in all their original hardihood and soundness, although certainly somewhat reduced in size. The Exmoors no doubt are the best of all our pony breeds, and are supposed to have come over with the Phœnicians, who in remote ages traded on the coast of Devonshire, or at any rate to have received a strong impression of eastern blood from that source. They are generally of a darkish brown colour, and the uncrossed ones are usually under 14 hands in height, thicker through than the New Forest pony, and showing more blood than the Welsh, while the Highlander is a mere cart horse in comparison. Annual sales take place of so-called Exmoors at Hampton and elsewhere, but these ponies are generally crossbred, which has given them more size and power, for as they have Exmoor blood in their veins they are from their size better adapted for general purposes than the native animal. In the year 1816 we are told an Exmoor pony was bought for the sum of 23s. 1 (a fair price in those days) at Simonsbath.

Having stated the different breeds of ponies to be found in England, we must refer to how they can be utilised either by crossing or using as we find them. The greater portion offered for sale, instead of being the result of judicious crossing, are often (the Galloways especially) "chance bred" through the promiscuous intercourse of the animals called the stock of the forest or commons, which, as they frequently belong to various owners, are also obtained from various sources. Where hill pastures form part of the home farm, or the domain on which it is situated, well-bred ponies can be made profitable to the breeders; for we must take into consideration the great rise in value that has taken place in late years, especially since the introduction of the game of polo, and when they are of good blood and superior shape and make combined with action. In fact it is found at the present time that no animal of the horse kind commands such a ready sale or relatively such a high price as a good cob or pony. Get a pair of well-matched cobs that can step and you may ask nearly your own price for them and get it too.

In first stocking the hillside for pony-breeding the first thing to be considered will be the number of mares that the hill would carry in its natural state so as to do them well. This point being determined we must consider the breed, and there can be no selection equal to the aboriginal breed of the district if there is one in use; where there is not one we recommend Exmoors. We must thus select such a size as our object in view dictates they should be mated with. Perhaps there could be no better or more profitable cross than with the Arab if he could be had of really pure and first-rate blood, as there is more to be said in his favour than any other which we can obtain. He is a wonderfully improving animal, for we often obtain stock larger than himself from large mares, and it is therefore fair to infer that he would enhance the size of the ponies in his offspring; at the same time he is very hardy, and no breed, not even the indigenous ponies themselves, sustains vicissitudes of climate so well as a rule. He is very sound, having capital feet, with legs like bars of steel, while his endurance cannot be called in question by anyone who like ourselves have seen them under all the varying circumstances by which they are ever surrounded, whilst in use in the different districts of the kingdom, where they are most prized and approved for the purpose of cross-breeding. With the mares properly mated with a horse of our choice there would be little to do, at any rate until foaling, or we may say weaning time, and the interval may be profitably employed in seeking out sheltered positions for enclosures with south aspects. At weaning time of course all the young stock would be gathered together, placed in sheltered paddocks, and done as well as circumstances would allow during the first winter. Then a selection of the best fillies would be made for stock, not to run wild on the hillside all the year, but to be crossed again with blood sires of substance when

old enough, and kept in some of the improved enclosures to which we have alluded.

In this way we may breed for any object we may desire, for in using sires accordingly we may obtain hunters, harness horses, &c., of every size and variety with the full advantage of the blood in their veins derived from the original Exmoors. It is, however, from the produce of the daughters of these mares and a blood sire crossed again with blood or a very good trotting stallion, that we should look for future profit, as these would produce larger stock with some quality. We would never have the mares worked at all or even shod, because we are convinced that we should breed sounder stock from unworked mares. We have now endeavoured to show what might be done with our native breeds of horses properly crossed on our waste lands.

WORK ON THE HOME FARM.

Horse Labour.—This can be assisted by steam power, and if this has been done during the past few weeks the work on the home farm must now be in a forward state. In order to be enabled to give the Mangold seed a fair chance of vegetating sow immediately when the weather is favourable. A liberal dressing of manure for Mangolds is always judicious, because if the Mangolds are removed for the feeding of cattle, and some manure is still left for the support of succeeding crops, the money spent upon it must be well laid out. There is the important question of sowing Clover and grass seeds with the Lent corn to be considered, and we recommend it to be done at the time of sowing the corn, because if the weather continues dry the sowing of Clover seed on the surface will not always insure its growth. There is, however, often some reason for delay when sowing on the Barley land, because it prevents the grass getting up so much in the standing corn at harvest. In the early white sorts of Oats it is no matter, for the corn may be cut above the Clover, so that an autumn growth of Clover available for cutting up as fodder may be obtained. It is at this busy period of the year when horses of sufficient power may be used two to a double-furrowed plough. This economy, however, cannot be obtained unless the horses are at least 16½ hands in height, and of weight and substance in proportion. We have lately noticed that three horses have been used in ploughing on some farms, even where the land is dry and friable. This is most disadvantageous in various ways, for these require a driver, besides the fact that one horse's labour is thrown away. It is impossible to make the business of farming profitable unless the severest economy is practised daily in every department, and we constantly notice that so much are many farmers prejudiced against even well-advised changes in agricultural procedure, that in some districts especially farmers have been ruined, or have vacated their land because they could not make a profit in farming upon the old systems.

POULTRY AND PIGEONS

THE FOWLS OF THE MEDITERRANEAN.

Thus not inaptly has been named the whole race of fowls cognate to the Spanish breed. Their home undoubtedly has for centuries been on the many-bayed shores of the Mediterranean. There they are still almost everywhere to be found, not in any great purity of breed as regards marking and colour, but with certain clearly defined characteristics running through all their sub-varieties, which are surer evidence of common ancestry than simple peculiarities of feather. The latter can easily be engrafted on a breed, the former take many generations to produce. Some of them, as the Leghorns, have come to us from the New World, yet with doubtless their old and correct name, and still showing all the characteristics of the fowls common on the Italian shores. Others, as the Black and White Minorcas, have long been bred in our extreme south-western counties, where probably they were first introduced by Spanish traders, and where they flourish better than in any other part of England. Others, again, as the highly bred exhibition White-faced Spanish, have come to us from Holland, whither doubtless they were brought during the rule of Spain in the Low Countries. The Dutch have a peculiar talent and fancy for growing and breeding up to a special standard, and in all probability they improved the fancy point of the white face before much attention was given to pedigree breeding in England.

Broadly speaking, those sub-varieties of the family which are kept in the Italian peninsula are coloured in plumage and yellow in legs. Those in the Iberian peninsula are blue-legged, and in plumage black or white, or of some intermediate hue, as blue or speckled. The characteristics of form common to all are considerable development of single comb, which in the hens is pendant, short bodies from breast to tail, short backs, and tails carried somewhat upright. Their common excellence is that the hens are abundant layers of large rather round eggs, and are non-sitters. It is as layers, not exhibition birds, that we are now primarily concerned with them.

At the same time, those who have an eye for the beautiful can well please themselves according to their taste from the catalogue of sub-varieties which we shall give. Our attention and pen was drawn to this subject by the complaint of a friend the other day that his White-faced Black Spanish hens were very poor layers. He had heard that Spanish were the fowls for eggs, and thought himself fortunate to receive a present of some half dozen pullets till a six-months corn bill had no eggs to balance it on the other side. Many similar complaints have from time to time reached us, and many queries as to the cause of Spanish hens disappointing their owners. Our general answer to them is, that we believe the race, for some reason which we do not pretend to explain, are not suited to be bred up to any fancy standard of points. We have had the most perfect Cochins in fluff and rotundity which have been the very best and most productive of layers. We have had Hamburgs which, after winning at the Crystal Palace or Birmingham, have immediately begun to lay, and for eight months continuously laid unvaryingly fertile eggs. We have found some of the best exhibition Dorkings we have ever known the best of layers too. We have possessed high-class exhibition Spanish, but we have found them miserable layers. At the same time, there is a consensus of opinion among breeders of the less highly cultivated sub-varieties of the race that they are among the very best of layers. For the benefit of poultry keepers who require a breed of good layers and non-sitters we will enumerate the various branches of the family we know. Space will not allow us to describe the points of each. These must be sought in poultry books, or better studied practically at poultry shows. In a future issue we will give some brief description of each.—C.

OLD FOWLS LAYING.

I REMEMBER reading in the Journal an invitation to those who kept poultry to give any information they might possess about old fowls laying. As my experience is somewhat unusual in this matter I venture to send a few lines.

I have two Dorking hens—a dark brown and speckled grey. They are seven years old this spring. Year after year they never cease to lay, commencing the beginning of March, laying on the average five eggs a week each until the end of October. This March furnishes no exception to the rule. They ramble in the fields and get their own living, with the exception of a small allowance of corn for their first feed. They associate with no other fowl whatever. They return to their house early to roost, and with full crops gathered in their rambles.

I have also in a small wired run three very fine Dark Brahma hens and a cock. They were hatched just four years ago. They are now laying well. On the other hand, I am not so fortunate in regard to six White Brahma pullets, which with their cock occupy a separate run, and although now a year old, and treated precisely as the other Brahmas, have not laid one egg.—MARIAN.

OUR LETTER BOX.

Drake Ailing (C. E. C.).—You may let the drake run in the garden. As from what you say it would seem his crop was not distended with water you may give him a moderate quantity to drink. Try the effect of another dose of oil. We fear the complaint is more deep-rooted than the crop, and that he will not get over it.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. March.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	19	30.108	deg.	deg.	W.	deg.	deg.	deg.	deg.	deg.	In.	
Mon.	20	29.806	44.3	42.7	S.W.	44.0	60.0	37.4	98.2	30.5	—	
Tues.	21	29.772	46.3	43.7	W.	44.4	63.9	38.2	128.7	33.3	—	
Wed.	22	29.772	45.3	40.8	N.	45.0	58.0	39.0	104.7	35.1	0.112	
Thurs.	23	29.937	39.0	35.0	N.W.	44.0	45.0	29.9	93.8	26.6	0.030	
Friday	24	30.241	35.8	33.3	S.W.	42.2	50.3	29.3	91.4	25.2	0.039	
Satur.	25	29.801	49.6	48.6	W.	42.8	55.8	35.5	81.8	35.2	0.023	
		29.761	45.8	41.6		44.0	56.2	38.2	100.1	33.0	0.672	
		29.918	43.7	40.8		43.8	55.6	35.4	99.8	31.3	0.876	

REMARKS.

19th.—Fine and bright; clear starlight night.
 20th.—Fine and bright, with more wind and much dust.
 21st.—Fine with bright sunshine in forenoon, later rough and squally, much colder; thick snow 9 P.M.
 22nd.—Frosty morning, slight sun on ground; squally with cold showers of snow and sleet; intervals of bright sunshine.
 23rd.—Fine and cold, but somewhat overcast.
 24th.—Generally cloudy and dull, fair till evening, then some rain.
 25th.—Very bright and fine, cold wind; rain in evening.
 Colder than the previous week, but still above the average.—G. J. SYMONS.



6th	TH	Royal Caledonian Society's Spring Show, Edinburgh. 2nd day.
7th	F	GOOD FRIDAY.
8th	S	Royal Botanic Society, 3.45 P.M.
9th	SUN	EASTER SUNDAY.
10th	M	Bank Holiday.
11th	TU	Royal Horticultural Society, Fruit and Floral Committees at
12th	W	[11 A.M.; Promenade Show.]

THE GLADIOLUS.

THE contribution of "D., Deal," on page 178 has doubtless been carefully perused by all your readers who are interested in the Gladiolus. Others have of late written on the same subject, and the conclusion I consider amounts to this—that it is the most captivating, the most capricious, and the most costly of all our flowers. It does not require the "doyen grower's" twenty-five years of experience, nor his stock of four hundred plants, to enable one who has made it a speciality to arrive at well-grounded opinions as to the bare justice of these designations. Not even the Rose has greater fascinations for its most ardent admirers, and I often find the culture of the two combined. But how often does a lavish expenditure of time, care, and cash result in the fact that we have no Gladioli in the garden, although we have them in the heart? I hold it to be beyond question regarding this grand flower that the caprice and the costliness are pre-eminently its own.

The advice of a friend given about six years ago was forgotten of sad personal experience. He cautioned me upon mounting a hobby that he shrewdly suspected would be pretty well ridden if mounted at all. In his homely way he warned me to "look out for a sourin'." I have confessed to him more than once since then how largely the bitter has obtained in proportion to the sweet. I have a neighbour, to whom I have before referred in the Journal, who has been an enthusiastic cultivator of the Gladiolus for a dozen years. I have not as yet met with any collection more select than our own, although both together would not greatly exceed in extent that of "D., Deal's." We have both had gratifying testimony that we can grow Gladioli; indeed, I hold my friend to be the best grower of them I know. Yet we have more than once wished we could give them up altogether. Instead of that, additions of new varieties and old favourites indicate that the allurements of the syren are too strong for us. I now advise all my friends that Gladiolus-growing is an expensive luxury.

I have planted early in the season and later; started the corms in pots and in the open; used farmyard and artificial manures; given and withheld the same in liquid form; mulched and abstained from mulching, and all with much the same results. A soil which seems to suit every other plant that I have tried and prepared according to their recognised requirements, sound corms, plants seemingly robustly healthy, and all the other conditions that in other cases almost insure success, are in that of the Gladiolus too often quite unreliable, and the most untiring attention is futile. The fact seems to be

that we are fighting against climatic influences which no care can counteract. If this be unpleasant, it is to no one more so than to myself, and, as "D., Deal," always maintains, truth is the desideratum, be it gratifying or otherwise.

The question of the evil being disease or exhaustion can be left open. Only the strength of the plants that died with me last year, some of them from as fine-looking corms as I ever planted, and which had never bloomed at all, and others that produced as grand spikes as I ever had, is the strangest symptom of exhaustion we could imagine. I would also observe that if the roots require ripening in greenhouses as has been suggested, then the Gladiolus must remain the flower of a comparatively select few, and must remain unclassified as a popular flower, as this alone would preclude its being generally cultivated. Is it becoming more so? The following queries suggest themselves. Is the number of special catalogues of Gladioli increasing or diminishing? Where these form but a section in a general catalogue is the list extending? Where elimination is taking place is it only of inferior varieties? Is the inability of dealers to supply really good sorts comprised in such lists, when applied for early, merely proof of the growing demand for these?

My per-centage of losses last season quite equalled—my friend's was perhaps somewhat less than—that of "D., Deal's," and these, as in his case, embraced the English and the French varieties, with some of a Scotch raiser's in addition. All three, and at all stages, fully sustained their treacherous character. The last I do not much regret; they were unknown to fame, and never would have attained it. They escaped being turned out by taking themselves off, and the parting caused no pang. I saw last autumn, in a district that ought to be favourable to the Gladiolus, if such is to be had in Scotland, the few very sorry relics of what had been a very considerable assortment, and which had included seedlings of the owner's that had been deemed worthy of being named and placed in commerce. Of the whole lot a few spindling representatives remained. I also know of and have seen exhibited Scotch-raised seedlings which would have done honour to any collection, and I know that many of these are extinct. So much for the constitution of home-raised sorts. Of the English varieties I lost many, and most of them high-class. These corms were from the stock of a Scotch grower, and that they should fare thus after an attempt to acclimatise them to the north does not offer much encouragement. I must add, however, that every one I obtained last spring direct from Langport remained sound, and of some I have an increase. Only one or two had the chance to bloom, disclosing glimpses of charms enough to whet a curiosity that has yet to be gratified. It is sincerely to be hoped that such grand kinds as Cymbeline, the Duchess of Edinburgh, Jessie, James Kelway, Queen Mary, and many others of Mr. Kelway's raising, will have a better opportunity this season.

The French sorts fared at least as badly. Of Ondine, for example, I had five, of Orpheus four, and the same number of Phoenix, and better plants I have not seen, if I ever saw them equalled. Of these thirteen there are three insignificant corms remaining. Le Phare, which had been increasing astonishingly well for a few years, has almost disappeared at one fell swoop. Of that beautiful variety the Marquis of Lothian, of which I had one corm three years ago, I last spring planted four, and to all appearance was secure of a gratifying addition. But, alas! I scarcely expect the sole remaining one to grow.

Even Brongniart came short; Camille, Daubenton, Horace Vernet, Legouvé, Le Vesuve, L'Unique Violet, Murillo, Mary Stewart, &c., answered indifferently to the roll-call; and so the wail might be prolonged. The advice has been offered, "Stick to less costly varieties." As well tell one accustomed to real gems to adopt those of paste. In this case even the outward semblance would almost be wanting, the inward satisfaction would equally be gone, and rather than do that I would follow the example of my mentor of six years ago and discard them altogether.

And so the blanks have in great measure been supplied, necessary preparations made, the roots will be duly planted, and the ordinary results will in all likelihood follow. If success is not attained it certainly is not without every effort being made and every precaution taken to deserve and secure it. New ground has been trenched and prepared according to all recognised instructions, and suspense and the usual alternating hopes and fears remain in prospect. In conclusion, to all who may wish to have their equanimity fairly tested, to be tantalised to the full, and to have an overful purse relieved, I can from my own experience strongly recommend, if they have not yet tried, an extensive cultivation of the *Gladiolus*.—A NORTHERN AMATEUR.

MUSHROOMS FOR THE MILLION.

(Continued from page 231.)

COMPARATIVE PROFITS OF OUTDOOR CROPS.

HAVING shown, what will not be disputed, that Mushrooms are highly esteemed because they are delicious; also that they are nutritious and constitute an important article of food; further, that the supply is quite inadequate to the demand that exists for them in the great centres of population, and lastly that they can be grown indoors or out in every district of the kingdom where horse stable manure is plentiful, and skill is provided or may be created to use it rightly, endeavour must now be made to show the accuracy of the statement that has been made relative to the remunerative character of the crop. It has been asserted that in this respect it exceeds all others that can be grown in fields or gardens for purposes of consumption, the cultivation of choice plants and flowers, and raising valuable seeds, being so special that they are not fairly eligible for comparison; but such crops as are eligible are hardy fruits of various kinds and vegetables. First, then, the average value per acre of several crops shall be approximately adduced, and it will be seen that the remunerative character of Mushrooms surpasses them all.

VALUE PER ACRE OF FRUITS AND VEGETABLES.

In submitting the following figures it is necessary to say that they are founded on the average results that have been realised over a series of years. In some districts certain crops may exceed the amounts per acre, but during other years the majority of crops will by no means equal the values apportioned; indeed, during some seasons there are both vegetable and fruit crops that afford no profit to the cultivator. This has been the case with much land devoted to fruit during recent years, and not less so in regard to many vegetables. The severe frosts of winter have destroyed many of the latter, while such summer and autumn crops as Peas, Kidney Beans, Savoys, &c., have so far exceeded the demand as to be unsaleable at prices that would even fairly remunerate the growers, as many of them know to their cost. The advice that is so frequently given, with the best possible intentions, to farmers to

grow green vegetables for market on their farms is neither safe nor sound, unless it is limited to those in specially favoured districts. These remarks are necessary, alike because they pertain to a subject of national importance, and because without some such explanation as they convey, the undermentioned estimated values might be deemed too low. Fruit crops, like vegetables, are also affected by the disastrous effects of spring frosts; but over an average of seasons fruit culture is doubtless profitable, and the more certain to be so when different kinds are grown, as they seldom all fail together. Under all the circumstances the average values given are believed to be rather too high than too low; and they certainly have not been fixed with the object of presenting more favourably the relatively greater value of Mushrooms. By way of adducing proof of the absence of any such desire, some extreme prices that have very occasionally been realised for certain crops and recorded as extraordinary shall be adduced, and it will be seen that even as compared with these the profits resulting from a simple yet well-conducted system of Mushroom culture are enormously greater than can be derived from any other farm or garden crop that is grown in the open air in this country.

In estimating the value per acre of different productions, we will first take the fruit crops. Cherries may be valued at (or as fluctuating between) from £20 to £40 per acre; Filberts, £30 to £50; Gooseberries, £20 to £30; Black Currants, £30 to £40; Red Currants, £20 to £30; Strawberries, £10 to £50; Raspberries, £20 to £40; Apples, £20 to £40; and Plums, including Damsons, at £25 to £40 per statute acre.

The following may be taken as nearly as can be obtained fair average values of some of the principal vegetable crops—Potatoes (early), £20 to £30; Cabbages (early) £40 to £50; Lettuces, £10 to £40; Peas, £10 to £30; Kidney Beans, £10 to £20; Onions, £20 to £40; Cucumbers, £10 to £20; Brussels Sprouts, £10 to £30 per statute acre. It must be remembered, however, that stated in this form the value of the land under vegetable crops is not fully rendered. Land devoted to fruit-production can only yield one crop in a year; but under skilful management two or even three crops of vegetables are produced; but ordinary farmers cannot be expected to produce them, and until they can they will often find fields of green vegetables unprofitable; but even under the best system of double cropping and allowing to each of the crops the full average value, they in combination do not approach the amount derivable, and which has frequently been derived and is regularly obtained from Mushrooms occupying the same extent of ground.

Now as a still stronger comparative test of the profits of Mushroom-growing some extreme prices that have been realised for other crops shall be adduced—namely, £100 per acre for very early Potatoes; £192 for Onions; £100 for early Cos Lettuces; £100 for Plums; £100 for Gooseberries; £150 for Strawberries; £168 for Black Currants, and £200 per statute acre for Filberts. Tomatoes may also be included, although the crop is now extremely uncertain in consequence of the prevalence of the disease that often so seriously affects them, and not unfrequently renders the crops worthless. Still in a favourable season as much as £300 per acre can be obtained from a crop of Tomatoes in the open air. Even these "extraordinary" prices are far

exceeded by a well managed system of outdoor Mushroom culture.*

A CAUTION TO FARMERS.

The prices enumerated above may possibly tempt some holders of land to devote it to vegetable culture even if they have had no experience in the work. Let them pause before changing their system. Unless they are so situated that they can be first in the market with superior produce they must not expect to obtain anything like even the average prices quoted, and their greatest chance of success lies in the cultivation of such root crops as early Potatoes, Onions, Carrots, Parsnips, and similar crops where the land and situation are favourable to their culture. Before entering on work of vegetable farming let the inexperienced consider that salesmen and greengrocers have to be reckoned with. At present these individuals, especially the latter, derive the greatest profits from vegetable culture. Let them also remember that the weather is as much likely to injure or even ruin green vegetable crops as it is to affect injuriously the cereal and ordinary root crops of the farm; and let them further understand that even the most experienced market gardeners cannot anticipate the nature of the supply and demand a year in advance, and when they attempt to do so they sometimes make great mistakes and incur serious loss. One instance of this will suffice. In 1879 Scarlet Runner Beans were scarce, and the seed did not ripen well. What so likely as that after a barren harvest of seed the following year's crop would be limited, and the prices for Beans consequently high? Everybody thought there would be few Beans sown because of the scarcity of seed, and everybody made special effort to obtain seed, and it appears did obtain it at a high price. The result was that a greater acreage than ever was placed under this crop, and the summer and autumn being favourable for the growth and fruiting of the plants the supply of produce so far exceeded the demand that tons of fine fleshy pods did not realise more than sufficient to defray the railway charges and the agents' commission. Hundreds of pounds were lost to the growers by this one crop. It is only fair to farmers who are urged to become market gardeners that they should be acquainted with contingencies of this nature, and to the losses to which cultivators are liable. It is not the fashion now-a-days to enunciate a doctrine of this kind, but when there is a danger of industrious men being misled by kindly advice "fashion" must be ignored, and both sides of an important question must be fairly represented. The only advantage farmers may possess over market gardeners or growers of vegetables is that the former can feed their stock with the produce that cannot be profitably disposed of in the markets; and it is the fact that many acres of vegetables that were produced at great cost have been so disposed of in Kent, on the principle of choosing the lesser of two evils. "But," it may be very naturally urged, "if a caution is needed against indiscriminate vegetable-growing under the temptation of high prices, there is at least equal need for caution against a similar rush into Mushroom-growing if the

prices that have been obtained are considerably higher." This is true, and when some facts, startling facts they will be to some readers, have been presented on Mushroom culture, a word of caution will follow, and a possible danger ahead will be fully and fairly discussed, the object being to guide safely, not to mislead.—J. WRIGHT.

(To be continued.)

DENDROBIUMS.

(Continued from page 256.)

PREVIOUS to the commencement of the present century we have no record that any species of this beautiful genus had been introduced to cultivation in England. Within, however, the first fifteen years four were imported, two from the East Indies—namely, *D. Pierardi* and *D. eucullatum*; and the same number from Australia—*D. speciosa* and *D. linguæforme*. Now more than two hundred species are known, and probably at least half this number are in cultivation, the varieties being also very abundant. All are epiphytal in habit, and the majority are found in India and neighbouring islands. Some are inhabitants of Austra-



Fig. 53.—*Dendrobium Falconeri*. (See page 276.)

lia, while a few are natives of Japan, New Zealand, and the Pacific Islands, but they are quite confined to the eastern hemisphere; the great western continent, so rich in the representatives of other Orchid genera, being without one *Dendrobium*. It will thus be seen that nearly all *Dendrobes* are natives of climates distinguished by their high temperatures, and where abundance of moisture at certain seasons stimulates growth of the eustomary luxuriant tropical character, and at others a period of drought induces a partial rest. The chief difficulty in imitating these conditions artificially is that naturally the highest temperature prevails at the time of drought, whereas we have to reverse this and induce the plants to rest in a cooler temperature. This applies to all natives of similar climates, but practically the plants soon become accustomed to the changed conditions if they receive sufficient attention in other respects.

Much diversity prevails in the habit of growth amongst *Dendrobes*. Some, like *D. linguæforme*, are very diminutive, not exceeding 3 or 4 inches in height, and have small thick leaves; others, as in *D. Dalhousianum*, have long bare stems or pseudo-bulbs. Some are club-shaped, others have strangely-formed pseudo-bulbs, alternately swollen and compressed like *D. crassinode*. Some are of erect growth, as *D. nobile*; others, like *D. Pierardi* and *D. primulinum*, have pendulous or drooping stems. The flowers are borne either singly upon the pseudo-bulbs in clusters of two or three or in dense or lax racemes, and these characters

* The average estimated values of fruit and vegetables have been obtained directly from large cultivators in Kent and Essex, and confirmed by an experienced salesman of garden produce in London. The "extraordinary" prices have been chiefly derived from Burbidge's "Industry of Horticulture." (Stanford, Charing Cross.)

being very well marked form a ready means of popularly classifying the species in two sections, which can be easily distinguished, though they are very unequal as regards the number of species they include, the former being far the larger. Botanically the species have been arranged under a number of sections, but the characters adopted are generally too technical to possess much value for gardeners, who chiefly require a simple mode of grouping. The flowers vary in colour from purple of many shades to rich golden yellow, while in many these are combined, the sepals and petals being purple-tipped and the lip yellow; in others, too, rich crimson or maroon blotches on the lip produce a beautiful effect, while a few have pure white or slightly tinted flowers. A quality possessed in a varying degree by some *Dendrobies*, and one which is very highly appreciated, is the agreeable fragrance distinguishing the flowers of several species, such as *D. nobile*, *D. primulinum*, and *D. aureum*. The odours of *Violets* and *Primroses* are reproduced, while others possess a peculiar fragrance quite their own and indescribable—to some persons pleasant, and to others disagreeable. These perfumes also strangely vary at different periods of the day, and gradually become less powerful as the flowers become older. A similar range is observed in the duration of the blooms. A day or two is the extreme period in which they continue in beauty in a few species, but the majority are very lasting, and some continue fresh when cut and placed in water for a month or more. This only refers to individual flowers, as some species can be had in bloom for several months if sufficient plants are grown to form a succession, as in the case of *D. nobile*, which can be hastened or retarded, thus greatly extending its period of usefulness and beauty.

Continuing the description of the most attractive species commenced in last issue, the next one deserving notice is

D. LITUIFLORUM.—In the colour and form of the flowers this beautiful species is suggestive of *D. nobile*, but the stems are pendulous, and the blooms generally somewhat smaller. It is considerably scarcer than *D. nobile*, and some orchidists find it rather difficult to grow satisfactorily, though its chief requirement appears to be a well-marked season of rest, when the supply of water must be greatly diminished, but not sufficiently to injure the plants, as they can be very readily if the pseudo-bulbs are allowed to shrivel too much. The pendent habit especially suits it for a basket, when sphagnum alone or with a little peat should be employed; it also succeeds well in a shallow pan or pot suspended from the roof of the East Indian or *Dendrobe* house, and when growth is being made liberal supplies of water are required. The flowers are produced in pairs from the nodes of the pseudo-bulbs, and when these are a foot or 18 inches in length and clothed with flowers they have a very beautiful appearance. The sepals and petals are of a pleasing purple hue, the lip being white, with a rich purple central blotch, and margined with a similar tint. The base of the lip is infolded, so as to resemble a funnel, or more correctly an open-mouthed trumpet, such as was used by the Romans, from which the specific name is derived.

Several variations in the size and depth of colouring of the flowers are included in collections of Orchids, but the most remarkable and handsome of all is the variety *candidum*, which has pure white flowers, the lip blotched with pale yellow. An excellent specimen of this is grown at Burford Lodge, and for a considerable time this has been flowering well, forming one of the many attractions in that superb collection.

D. FALCONERI.—When well grown this is unquestionably one of the most handsome forms of the genus, but unfortunately in some gardens it has been given up in despair as impossible to obtain in satisfactory condition, though in others no difficulty whatever is experienced in both growing and flowering it. Strangely, too, equal success seems to be attained under very different systems of culture. For instance, one orchidist winters his plants in a cool position, withholding water for two or three months, and another supplies water constantly all the year through, though in lessened quantities at the period of rest. The chief point needing attention is to encourage vigorous growth, which must be well matured by exposure to light and sun in the autumn, as upon this the success of the following year greatly depends. A block is most suitable for it, and preferably where obtainable portions of thick Tree Fern stems, upon which the plant thrives admirably in many establishments. Some very good specimens are grown at The Firs, Sydenham; and Mr. Coningsby finds the best plan is to rest the plants in a late vinery from Christmas to March, withholding water completely. They are then removed to a warm fernery, where they are suspended from the roof and occasionally well syringed, though at present this is not much needed, as the moisture in the house is sufficient. They are allowed a good season of growth in the *Dendrobium* house when water is abundantly supplied, and as the

results of this treatment they are as healthy and vigorous as could be desired, flowering freely every year.

In the form of the pseudo-bulbs *D. Falconeri* is very distinct from its allies, being very slender, with swollen internodes, and bearing linear grass-like leaves, which impart a very graceful appearance to the plants. The sepals are rosy and the petals white, both broad and tipped with rich purple, the lip being large and open with a fine deep crimson-purple central blotch, orange and white crescents, and a purple tip—a striking combination of colours. The species is a native of Bootan, where it was originally found at considerable elevations, in some instances slightly above 4000 feet. It was introduced about 1856, the first plants being sold by auction and purchased by a gentleman in Somersetshire, from one of whose specimens an excellent coloured plate was subsequently prepared for the "Botanical Magazine." The flower shown in the woodcut (fig. 53, page 275) is a very good variety, but Messrs. Veitch of Chelsea obtained a certificate at the recent Spring Show, Regent's Park, for a superb form named *D. Falconeri giganteum*, which has much larger flowers, the colours being richer and brighter.

Many others of equal beauty deserve notice in this section, especially the superb *D. Wardianum*, of which an excellent variety was described and figured in this Journal, page 317, vol. ii. This is now a great favourite, and deservedly, for even the poorest varieties are handsome, and forms are now in cultivation which in the size and delicacy of their white, rich crimson-tipped flowers are not excelled by any other members of the genus. *D. primulinum* is another beautiful Orchid, especially the variety *giganteum*, which has enormous flowers, somewhat suggestive of an extremely fine *D. Pierardi*; it is also deliciously fragrant, and though the flowers are not so durable as some of the others it continues in good condition for several days. *D. macrophyllum*, with its huge purple flowers, though possessing an odour which some have compared to druggists' rhubarb, is well worth a place in any collection, and the rose-tinted *D. M'Carthyi* is a similarly attractive species. The pretty *D. tortile*, with its several varieties, is a favourite with all growers, and when flowering freely it adds considerably to the beauty of the Orchid house in the early spring months, when so many *Dendrobies* are in their best condition. *D. Findlayanum* with creamy white sepals and petals, and orange yellow lip; *D. amœnum* with neat white purple-tipped flowers, and innumerable others, have all more or less attractions.

THE RACEMOSE SECTION.—The numerous species of *Dendrobium* which produce their flowers in racemes constitute an important and distinct section from a cultivator's point of view, as a good proportion of them are characterised by an upright habit of growth, which renders them better adapted for pots than baskets as regards appearance, though some can only be grown satisfactorily under the latter system. It is somewhat curious, too, that yellow and white flowers predominate in this section, whilst in the preceding shades of purple and rose with white are the most abundant tints.

Three pretty species, to some extent alike yet easily distinguishable, are *D. formosum*, *D. infundibulum*, and *D. Jamesianum*, each bearing flowers with broad white sepals and petals, the lip being also white blotched with yellow or orange of various shades. They differ somewhat in general outline, size, and substance; *D. Jamesianum* in particular having a peculiar paper-like appearance, while the others are more glossy and waxlike. The two latter—namely, *D. Jamesianum* and *D. infundibulum*, are the only two species of the genus which appear to thrive under cool treatment. Many of the others will endure a comparatively moderate temperature when at rest or when in flower; and in the last-named case their beauty is considerably prolonged in a cooler house, but few can be safely trusted to cool quarters entirely. These two, however, succeed very well in the *Odontoglossum* house in many establishments; and though in some they are grown with the ordinary stock, they do not, with few exceptions, give such satisfactory results. They should be grown in pots, employing a compost of peat and sphagnum with abundance of drainage.

D. chrysotis has brightly coloured flowers suggestive of *D. fimbriatum*, though the lip is scarcely so much fringed. The colour of the sepals and petals is a rich shining yellow, the lip being of a similar tint, but relieved by two deep crimson blotches near the base. The general form and markings of the flower are well indicated in the woodcut (fig. 54, page 277). The flowers are borne in rather loose few-flowered racemes, which are produced near the apex of the stems. *D. densiflorum* and *D. thyrsiflorum* are also handsome species, with large dense racemes of bright yellow flowers, and to these may be added the tall-growing *D. Dalhousianum*, with large buff flowers, of which the maroon-blotched lip is so striking. The superb *D. Hookerianum*, with its handsome rich orange-coloured flowers, having a finely fringed lip like

D. fimbriatum, and the orange-brown *D. fuscum*, which has fine long racemes of flowers, must also be mentioned as amongst the most distinct.

THE AUSTRALIAN SPECIES.—Several very distinct *Dendrobies* have been introduced from Australia, most of which are handsome, but rather difficult to grow successfully, or rather to flower freely. Perhaps the charming *D. superbiens* is scarcely equalled in this section, as its flowers, possessing a distinct yet attractive rosy hue, and being borne in long racemes, render it very showy. *D. bigibbum* and the far superior variety *superhum*, a flower of which is shown in fig. 55, page 281, is another handsome Orchid, bearing broad bright rosy flowers in racemes from the apex of the stem. This species was originally found by Dr. Thomson upon Mount Adolphus, Torres Strait, on the north-east coast of New Holland, and is one of Mr. C. Loddiges' numerous introductions to the plant collections of England. Owing, however, to the higher tempe-



Fig. 54.—*Dendrobium chrysotis*. (See page 276.)

rature of the locality in which it is found it does not thrive in such cold quarters as the other Australian forms. It is best grown in a pit in a compost of peat and sphagnum, and it may be either grown in the *Dendrobium* house or in the cool end of the East Indian house. Many others might be named, but the above two are the best of this section, though *D. teretifolium* is pretty with its branching spikes of small white flowers, and *D. Kingianum* is worth a place among the curiosities.

To complete this very brief review of a large and handsome genus some reference to the hybrids which have been obtained is needed, but notes on these must be deferred to a future issue.—
L. CASTLE.

THE CULTIVATION OF THE POTATO.

I HAVE frequently written in this Journal upon this subject, both to try to impart information, and more frequently to acquire it. The Potato is an important crop in this country, and we are, both on the farm and garden, comparatively extensive growers; therefore everything that conduces to success deserves serious consideration. The writer, "SINGLE-HANDED," though he claims "to speak with a decision to which he is entitled from experience," propounds some views on this subject (page 240) to which I cannot assent, and a further reference to which may be judicious from others as well as myself. Unfortunately I am just now very busy both in gardening and farming, and can only draw attention to the points I noted as I read the very intelligent article alluded to. "Hardly any other garden crop is so badly treated in the matter of manuring and preparation of the soil." I know Ireland well, England north and south, and even France, and cannot agree with this. Your correspondent has a soil 8 or 9 inches deep, with a "subsoil impenetrable, rusty, sandy, and

clayey," and with a "strong pick he would break up this subsoil by trenching and wheeling to the other end." I merely requote this to say I would prefer making use of my 8 or 9 inches of soil and leave such a subsoil alone. When I was a pupil at the Government Farming and Gardening Institute at Glasnevin, a whole field with such a subsoil was trenched at a very large expenditure, and with disastrous results to the succeeding crop. If any of your readers should be tempted to try such an experiment, let it be done gradually, and with extreme caution.

I cannot speak from experience of "sulphate of potash sprinkled over ordinary manure some months before using" as compared with "ordinary manure alone," but the point is worth the attention of some of your other correspondents. And I would make a similar remark as to the use of "cows' urine." Is it liquid manure from the cow-byre is meant? and what are the "chemicals" to be applied before planting? "Seed Potatoes should, whenever possible, be spread in an airy shed thinly." I presume, in the absence of any explanation in the context, this does not mean during such winters or early springs as that of 1880 or 1881, because I have seen tons destroyed for any purpose so treated. Even to prevent sprouting, to which I recently drew attention in the Journal, such advice should be very cautiously adopted. I should not put Potatoes, thinly or otherwise, in an airy open shed, and our climate is evidently much milder than that of your correspondent. As to sets, he says, "most growers leave two or more eyes—why, nobody knows." Your correspondent may rest assured that many do know, and his admission that "most growers" adopt the custom should make him cautious in the assertion. Relative to "thinning out the stems with the view of having a few large tubers," thousands of persons prefer medium-sized tubers. Large tubers, in several varieties, are hollow, and not well flavoured. I did not think there was any part of the British Islands where "it is foolish to plant the earliest variety before April."—W. J. M., *Clonmel*.

["SINGLE-HANDED" did not remove the subsoil and wheel it to the "other end," as appears to be implied in this communication.]

CULINARY VARIETIES OF APPLES.

THE Apple is so pre-eminently the chief all-the-year-round fruit that I think the pages of the Journal may, perhaps, find room for a few more notes on the subject of the Apple election. The soil on which my trees are grown is deep and somewhat stiff, but for the most part efficiently drained. It is on the southern slope of a range of Surrey hills, at an elevation of several hundred feet above the sea.

Among cooking Apples our favourite is *Stirling Castle*. The tree bears abundantly year after year, and with us does not canker. The fruit is large, symmetrical, and handsome, juicy, and well flavoured. We have just used the last of our supply, so that it is a good keeper. All our friends who have seen it, both on and off the tree, have been struck with its uncommon beauty of form and its pearly unblemished skin. It cannot fail before long to find its way into most gardens.

Duchess of Oldenburg is equally prolific, and, with its rounded form, good size, and its painted crimson cheeks and peach-like bloom, is perhaps the handsomest of Apples. It cooks well, and is considered by us delicious and tender for dessert. It was good the first week in December, when our stock was exhausted. Our trees do not canker. An espalier of this tree laden with deep-coloured blossom or ripening fruit attracts every passer-by.

The Emperor Alexander has many of the good qualities of the last-described Apple, but with us is not so constant a bearer. *New Hawthornden* is prolific, the fruit large and of fine flavour. We had an excellent tart from it the last week in February. *Betty Gecson* also has a red cheek, and cooks and keeps well; it is fertile, as a rule, but sometimes misses a year.

Reinette de Canada, whether as pyramid or espalier, bears regularly and freely every year; one of its handsome fruits is before me, and measures 10 inches round. It is good for the kitchen. Some of our party have eaten it to-day (March 25th) for dessert, and pronounce it tender, sweet, and of good flavour, although perhaps a little dry from age. The trees show a slight tendency to canker. *Dumelow's Seedling* is fertile and vigorous, and with us, so far, has not cankered. The appearance and good qualities of its fruit are well known. Our rather large stock is, without an exception, still sound, with every appearance of continuing so for some time to come. The grateful acidity of this Apple is characteristic, but otherwise it is not, perhaps, of such high flavour as some other late varieties.

That genial correspondent of the Journal, the "WILTSHIRE RECTOR," who "touches nothing that he does not make interest-

ing," says that Tom Putt may be grown with advantage where Dumelow's Seedling does not succeed. Is the former a local Apple? In the last edition of that marvel of fruit lore, Hogg's Manual, the name is not mentioned. I find Northern Greening and French Crab vigorous and fruitful; their fruit is valuable as lasting late.

Of early cooking Apples Keswick and Manx Codlins never tire of prodigious bearing year after year. The trees are hardy and healthy, and we think the fruit, perhaps because it comes in early, excellent for tarts and puddings. Whenever in the late summer and autumn an Apple is wanted in the kitchen we go to these trees and gather, and never seem to miss a dish from them. Lord Suffield gives a good crop, and the fruit is large and good; but here, as elsewhere, the tree is not vigorous. Jolly Beggar produces good fruit, but smaller than the preceding, and is perhaps superfluous where they succeed. A fine tree of Cox's Pomona, covering a high wall facing south-east, is not a profuse nor a constant bearer; but the fruit is wonderfully large and handsome, and cannot be surpassed for roasting.

Of Ecklinville Seedling I have several healthy trees now crowded with blossom buds, but they have not yet borne fruit. Blenheim Pippin, as espalier, standard, and bush, yielded last year—a first-rate Apple year—among seven trees only four Apples! Perhaps this variety requires many years over its head before it becomes fertile. The same may be said of Hambleton Deux Ans, which, although growing well, has not yet blossomed.

Cellini cankers, and its branches die one by one without bearing, and the same may be said of Alfriston. We have planted many other Apples in order to test them, and have spoken of those only that have been so far the best bearers.

About our grass fields are many venerable trees—some of them with local names, such as Curltails, Limmertwigs, &c. Some are coarse in flavour, and all are inferior to the more modern fruits named above, excepting the old Orange Pippin, which, although apt to be marked with specks, is fertile, and the fruit handsome and good for dessert, cooking, and cider. It keeps well until February.

It may be seen how much my experience in this part of the country confirms the much larger experience of the "WILTSHIRE RECTOR" in another part.—A SURREY PHYSICIAN.



A LECTURE ON THE HISTORY OF THE AURICULA will be delivered by Mr. Shirley Hibberd in connection with the National Auricula Society's Exhibition at South Kensington. The lecture will be given in the conservatory at 3 P.M. on April 25th.

— WE learn that the annual Exhibition of the NATIONAL AURICULA SOCIETY (Northern Division) will be held in the large room of the new Town Hall, Manchester, upon Tuesday, May 2nd.

— AN Edgbaston correspondent desires to know if it is possible to obtain LARGE PUFFBALLS from spawn, the same as Mushrooms are obtained. He wishes to grow them in a field and orchard, and thinks it a pity they are so little appreciated as food, and so generally scarce.

— MR. J. FORSYTH JOHNSON, Director of the horticultural exhibitions at the Alexandra Palace, informs us that he has taken an office for his landscape gardening business at 90, New Bond Street.

— WE learn that the NEW DOUBLE PINK BOUVARDIA, referred to on page 155, will shortly be distributed by Messrs. James Carter & Co., who, we are informed, are appointed sole European agents for it.

— J. F. PEACOCK, Esq., of Sudbury House, Hammersmith, recently submitted to our notice a NEW LYCASTE of the L. Skinneri type, but very distinct from any varieties we have seen. It is chiefly distinguished by the smaller pseudo-bulbs and the

spreading petals, the latter being of an intensely rich rosy crimson colour, affording a most pleasing contrast with the blush tinted sepals; the lip is also richly coloured. If it be a variety of L. Skinneri it is by far the finest we have seen. The plant is to be referred to Kew for identification.

— WE understand that the finest COLLECTION OF TULIPS IN LONDON will shortly be in flower at Captain Patton's new residence, Alpha House, Regent's Park. Twelve bulbs each of upwards of three hundred varieties were planted, and although they cannot all be expected to be in beauty at the same time, yet the display can scarcely fail being both interesting and attractive. It would appear, in consequence of suitable structures not being erected in time for growing bulbs largely and well under glass, that more attention has been given to growing them out of doors, and we are informed that altogether about 30,000 have been planted in the garden in question.

— "IN the neighbourhood of Bristol," writes a gardener, "LACHENALIA TRICOLOR is remarkably well grown, and I have never seen it in better condition than as exhibited at the spring show. They were grown principally in 5-inch pots, about six bulbs in each, in a compost consisting of two parts good loam to one of manure, with a sprinkling of sand; and this appears to suit them well, as nothing of the sort could be finer than the splendid spikes of bloom surmounting the broad and sturdy foliage. It is not advisable to ripen off Lachenalias very rapidly, and repotting should not be delayed after growth has commenced. During the winter months shelves near the glass in a comparatively cool house are suitable positions for them, and they are very effective when grown in hanging baskets."

— MR. IGGULDEN writes—"On the south side of a belt of forest trees fringing Marston Park there is a fine old specimen of the GLASTONBURY THORN. According to the accounts given by some of the 'old hands,' flowers have been gathered from this tree on one or two occasions early in January, and this winter I noticed a few branches considerably more advanced than the remaining portion of the tree. No bloom, however, expanded, and these early breaks now present the appearance of being scorched. The growth generally of this tree is now nearly a month in advance of the common Thorns near. Some of the growths are at the present time 9 inches in length, and the flower buds, never very plentiful, are just on the point of expanding. The vagaries of this tree are enigmas to me. Is there any accounting for them? It is an old maxim, 'Habit is second nature,' and perhaps the Glastonbury Thorn, having once acquired bad habits, cannot regain regularity."

— THE same correspondent observes—"All kinds of FLOWERING SHRUBS AND CLIMBERS are remarkably floriferous this season. For instance, I never saw Chimonanthus fragrans flowering so freely as on Marston House this winter; and the same may be said of Pyrus japonica and Forsythia viridissima both on the house and rockwork, these at the present time being very effective. In the grounds several specimens of Berberis Darwinii, about 9 feet in height and bushy, are densely flowered; and whether closely inspected or viewed from a distance, the neat, rich, apricot yellow blooms and habit of growth cannot fail to please the most fastidious. No shrubbery may be said to be complete without a specimen or specimens of this perfectly hardy Berberis."

— A PETERBOROUGH correspondent writes—"Nearly all kinds of FRUIT TREES promise an abundance of bloom this season. Apricots have flowered very freely, and small fruit as large as peas are showing plentifully. Many of the Pears are ready to start into bloom. Apples are showing well; the Ribston Pippin has abundance of buds. Cherries and Plums are showing profusely; many of the latter, as Jefferson's and Diamond, are in full flower. The cold winds that are now prevailing I fear will prove injurious

to them. William I. Peas sown in November have done well, and are now showing their flowers. This variety with me I find is better and stronger than the old favourite, Sangster's No. 1."

— MR. B. COWAN regrets to inform us that "MR. JAMES DALE, GARDENER AT BRANCEPETH CASTLE, DURHAM, died on Saturday, April 1st. He was born on January 1st, 1816. Mr. Dale succeeded his father as gardener at Brancepeth, and held that position for many years. He was well known in the north, and highly esteemed amongst his gardening confrères. He was successful in his efforts as a practical gardener, more particularly in growing Pines and Orchids, and the many valuable additions made to the beauty of the grounds show that as a landscape gardener he was also skilful. An account of Brancepeth, which is the seat of Viscount Boyne, appeared in this Journal December 25th, 1879, page 509. Mr. Dale was a great student of nature. His collections of stuffed birds and geological specimens are both numerous and interesting, and won the approbation of the late Mr. Waterton."

— CONSIDERABLE progress is being made with the NEW ROCKERY at KEW, for which a grant of about £400 was, we understand, recently obtained. The site selected is the oblong piece of lawn between the wall of the herbaceous garden and the Orchid house—a very convenient position, and where the rockery will appear to excellent advantage if well executed. It is at present too early to judge of the design, as only the foundation is being formed, but it is desirable that in our noted national gardens every effort will be made to avoid the formality and sameness which characterises too many of such structures in ordinary gardens. Such an elaborate and beautiful rockery as that in Messrs. Backhouse's nursery at York can scarcely be expected, but something a little out of the common will be confidently looked for. Judging by the space devoted to it, this when fully planted will, we should think, contain one of the largest collections of alpine plants in the kingdom.

— EVERY year the HYACINTH BEDS AT DUNEEVAN are worthy of note, so completely are they filled and neatly are they kept. Between four and five thousand imported bulbs are planted, one-third being of double varieties. They are inserted about 6 inches apart in nearly twenty beds, the central bed containing a thousand plants. Each plant is supported with a stake made of stout galvanised wire—the neatest and most durable stakes for these and other small border flowers that we have seen. Many of the spikes of flowers are of exhibition quality, and as the colours are brighter than those of plants grown under glass the effect produced is singularly beautiful. The beds are margined with Crocuses, the bright green elegant foliage of which forms a graceful fringe to the masses of Hyacinths. In all other departments Mr. McIntosh's garden is worthy of high commendation by the neatness and good culture that prevails—Vines, fruit trees, Lilliums, Rhododendrons, and two hundred varieties of Zonal Pelargoniums, including many of the late Dr. Denny's latest unnamed seedlings, being in most promising condition, and both owner and gardener must be congratulated on their excellent work.

— WE are requested to announce that a cheap work by Mr. Fawkes on HEATING BY HOT WATER on the low-pressure system is in the press, comprising some of the principles involved, an illustrated explanation of the apparatus and its parts; also its application to greenhouses, hothouses, conservatories, churches, chapels, mansions, &c.

— ON Tuesday, the 4th inst., in the High Court of Justice, Chancery division, before Mr. Justice Chitty, a petition was presented by a creditor for the winding-up of THE GENERAL HORTICULTURAL COMPANY, LIMITED. It was alleged that the Company

was doing a large business; and it was represented that the shareholders and the bulk of the creditors desired that the Company should be allowed to continue its business in the expectation that it would ultimately be successful. His Lordship ordered the petition to stand over for three months, and continued the appointment of Messrs. Stagg and Smith as provisional liquidators in the meantime. We also learn that at the meeting of the creditors at Warwick House, Regent Street, on the 30th ult., the Company undertook to pay half its debts in six months, and the remainder in eighteen months, dealing in the meantime with its creditors on cash terms.

— THE MANCHESTER FLOWER SHOW, held in the Town Hall on Tuesday last, proved a great success, but we can only state that the following were some of the chief exhibitors with the awards granted them. The Society's silver medal to Messrs. Fisher, Son, & Sibray, of Handsworth Nurseries, Sheffield, for greenhouse Rhododendrons. First-class certificates to Messrs. Fisher, Son, & Sibray, for a Rhododendron named Duchess of Connaught, and for Rhododendron Lady Alice Fitzwilliam; Messrs. Cranston & Co., for *Hoya globulosa*; Messrs. R. P. Ker & Sons, for *Cyperus laxus variegatus*. First-class cultural certificates to Mr. G. B. Blair, for *Cinerarias*; Mr. Oskar Schneider, for *Dendrobium nobile*; Messrs. H. Cannell & Sons, Swanley, for *Cinerarias*; Messrs. R. P. Ker & Sons, for a collection of miscellaneous plants; Mr. T. Jannock, Lily Nursery, Dersingham, Norfolk, for Lilies of the Valley. First-class commendations to Messrs. Dickson, Brown, & Tait, Corporation Street, Manchester, for Hyacinths; Mr. James Marson, for Rhododendron *Veitchianum*; Mr. Thos. Walkden, for Pansies; Mr. E. Rogerson, for *Cinerarias*; and to Mrs. Tootal, for Rhododendron *javanicum*.

— IN the miscellaneous collection of Orchids at The Firs, Sydenham, some of which were referred to last week, CATTLEYAS are promising a grand display, and already there is a fine show of *C. Trianae* and its varieties, ranging in colour from white to rich crimson. In some the blooms are surprisingly massive, the petals broad, and the lip most handsomely coloured. *C. Mendeli* and *C. Mossiae* have abundance of sheaths, and the plants all appear in excellent health. *Masdevallias* are also in very good condition, some beautiful varieties of *M. Lindeni* and *M. ignea* being in flower, the latter being especially fine. *M. Shuttleworthi*, one of the most distinct and pretty species in the genus, is flowering well, the neat purple-tinted lower sepals being very attractive. Amongst the novelties is an unnamed species of *Eulophia*, which has been referred to Professor Reichenbach, but is not yet determined. It has compact panicles of small flowers, the sepals, petals, and lip being yellow, barred and spotted with rich brown. It is very free and graceful in habit. The pure white *Lycaste Skinneri* alba must not be omitted, as it is now in admirable condition, bearing large wax-like flowers. The peculiar *Masdevallia chimæra* also has several flowers 15 inches in diameter from tip to tip of the opposite sepals. These are only a few of the beautiful and noteworthy plants grown in the houses at The Firs, for stove and greenhouse plants also receive good attention, and are in similarly satisfactory condition.

— AMONGST the very numerous Orchids in the other departments at the above gardens DENDROBIUMS are now flowering particularly well, and most of the best species and varieties are included in the collection. A remarkably handsome form of *D. crassinode* is especially noteworthy, the white sepals and petals being tipped with very rich crimson, the lip having a deep yellow central blotch, and is tipped with a similar shade to the petals. One plant of *D. Wardianum* has flowers 4 inches in diameter, the sepals and petals very broad, and the lip of unusual size, nearly circular, and about 1½ inch in diameter. *D. Freemani* is still

flowering well though somewhat past its best, having been in good condition for a considerable time. A plant of moderate size with over three dozen of its rich purple-tinted flowers is extremely attractive. Many others are similarly beautiful, including the pretty purple *D. lituiflorum*, the white and yellow *D. erepidatum*, and *D. Findleyanum*, the fragrant *D. primulinum*, the delicately mauve-tinted *D. tortile*, and the handsome *D. albo-sanguineum*.

DESTROYING COCKROACHES.

OBSERVING you solicit information from correspondents who have been successful in destroying cockroaches, I gladly give my experience. In August last year we had two houses infested with them. In the first the Cucumbers had their leaves completely riddled, and the fruit presented a scaly appearance from their ravages. Noticing how partial they were to the Cucumber plant, I procured a plant, allowing it to ramble over the bed, dusting all the leaves with hellebore powder, which were readily devoured. We soon found some of our enemies dead. These were placed on the beds (for experiment) at night, and in the morning portions only of the bodies could be found, proving their cannibal habits. We continued the use of hellebore some time, with the result that not one cockroach has been seen for two months. In the other house, occupied with Ferns and Orchids, the pests fed on roots and tender growths of the Orchids. We brought the powder to this house, using it on Cucumber leaves and small pieces of paper, placing them about the stage and on the pots with the same success as in the first house. We always examine the old drainage when repotting, occasionally finding a few eggs.—G. W. CUMMINS, *The Grange, Wallington*.

A GENIAL SPRING.

GRANTING the probability of cold and gloom yet intervening to mar the fair promise of a year of unusual brightness and abundance, it is, nevertheless, well to record the singularly calm mild weather which has long prevailed and its effects upon vegetation. Surely there never was so quiet a March. True, the month opened boisterously enough, but the high winds soon sank to a calm, and we had brilliant weather until the 21st inst. During this period I noted some of the best plants in flower, and among them the following deserve special mention.

The first token of an early spring is a fine plump bud of *Maréchal Niel* Rose in a sunny nook upon a south wall. Then the eye is attracted by the unusual beauty of a white Oxlip named *Purity*, given me some time ago by "PHILANTHOS." It has large flowers of fine form borne in trusses of eight, some of which are to be had throughout winter, but the flowers have never been so fine and abundant as they are now. The leaves of *Gunnera scabra* are already half expanded; the *Laurustinus* are one mass of pearly flowers, and have been so for the past four months. *Mahonia aquifolia* has its abundant massive flower clusters fast opening into full beauty. *Berberis japonica* has been in full bloom for some weeks, and *Berberis Darwinii* has a few sprays of open flowers, and the deep orange-coloured buds cluster thickly upon every spray. This is undoubtedly the best of the *Berberis*; it answers well everywhere, but is seen to most advantage planted singly out upon a lawn. A fine specimen so placed here grows yearly in beauty, requiring very little pruning to render it sufficiently symmetrical, a close precision of outline being undesirable, as tending to rob it of the long pendant sprays which are so lovely when in bloom. It answers best in a deep rich light soil. *Ribes præcox* is in full beauty, but the deeper-hued *R. sanguineum* and its double form are still only in bud. How very beautiful are the deep pink cushions of *Erica carnea*! and what a charming contrast they afford to the lovely blue flowers of *Omphalodes verna* and the white Heath-like blossom of *Andromeda floribunda*! Is it possible to find a more charming trio of spring flowers? *Andromeda calyculata*, both major and minor, are also in full bloom, but the unfortunate brown hue of the foliage renders them dull-looking and undesirable for prominent situations.

Ceanothus rigidus is covered in every part with its densely clustering lavender-coloured flowers with pretty yellow stamens. *Lonicera fragrantissima* has only a few of its deliciously sweet flowers left, and is bright and fresh with new growth, some of the shoots being already upwards of a foot in length. *Akebia quinata* is also growing freely, and gives promise of plenty of its curious flowers later on. This proves one of the best hardy climbers for covering a large space quickly upon a south aspect in this district. *Forsythia viridissima* is very full of bloom, much more so than I have ever seen it before. Is this owing to the mild weather, or does it require age before flowering freely? *Lithospermum præ-*

stratum also has an unusual abundance of its deep blue flowers. Two plants of it are trailing over some rocks at about 6 feet from the ground, and are seen to great advantage so. The slender flexible shoots of *Spiræa callosa alba* have plenty of the pretty little white flowers, and the sweet-scented *Erica mediterranea* and its white form are in full bloom, to the delight of the bees. Winter beauties have not all forsaken us yet, for the Pampas Grass plumes are still so bright and silvery as to be worth retaining a while longer.

Aquatic plants are also starting into growth. *Hottonia palustris* has already got flower spikes well above water. Its foliage is beautifully green; a large panful of it growing freely is certainly very elegant just now. It loves a still pool and is easily managed. From the huge creeping stems of the large American *Nuphar*, clearly visible at the bottom of the calm transparent water, flower buds and leaves are springing upwards abundantly. *Aponogeton distachyon* has plenty of its sweet-scented flowers, and the *Nymphæas* are all putting forth leaves, *N. odorata* being the most forward.—EDWARD LUCKHURST.

LA GROSSE SUCRÉE STRAWBERRY.

I NOTICE at page 233 your correspondent, Mr. G. Summers, asks if I have the true variety. I believe I have. I have seen it several times, and his description answers mine. It makes little growth out of doors here; the soil is light on the red sandstone rock. When your correspondent took the note on the 8th inst. it was not colouring, and the Viscountess was ready to gather on the 10th. They were started together on the 24th of December in the early vinery. When the fruits were set the plants were removed to a shelf in the Pine stove in the first week in February. I consider it to be a most valuable variety, and can endorse all he says of its good qualities. In pots it is much stronger in habit, the fruit larger, bright red in colour, and it produces a strong flower spike, which is not the case with the Viscountess. I noticed last year that the Viscountess was a little earlier—some four days. We grow three thousand in pots, and have tried all the popular kinds, and find after three or four trials which answers best in this locality. We grow the Viscountess for the first, President for second, James Veitch for late supply, with one or two others for trial. I have not been able to obtain stock enough of *La Grosse Sucrée*, but hope to do so this year partly to displace the Viscountess.—F. FAULKNER.

EARLY-FLOWERING HYBRID RHODODENDRONS.

WHILE observing with pleasure the progress in hardy flower culture generally, I regret to think the early-flowering *Rhododendrons* appear to be losing ground. For some years when visiting gardens I have been astonished to find that but few of these are accorded a place. Those who plant *Rhododendrons* evidently select those that will not open their flowers until all fear of frost is past. Plants of *R. blandum* flowering outside here have from time to time been very much admired, especially this year, because the mildness of the season brought them into bloom much earlier than usual. Certainly there is a risk of their flowers being injured by one night's frost; but are not *Hyacinths*, *Narcissus*, *Erica carnea*, and others equally liable to injury from the same cause? In most gardens there are sheltered positions where early-flowering *Rhododendrons* could be planted, and would prove successful eight seasons out of ten. If planted in a group they would well repay any little trouble that might be required to protect their blooms with thin canvas in case of frosty nights. As a rule, the early varieties are compact in habit and free in flowering. A large bed of them when they are in flower could not fail to arrest attention and prove attractive in any garden. During the past four or five years the variety alluded to has never failed here to open its flowers, which have lasted a long time without any protection.

These early varieties are not only valuable for outdoor planting, but should be used for early forcing indoors. The late-flowering kinds require much forcing to have them in flower early in the season; in fact, they cannot be had in flower by Christmas, while the former will develop their flowers at that time, or earlier if required, with but little heat or trouble, provided they are potted in early autumn. Towards the beginning of February they will unfold their flowers in a cold vinery or Peach house. This year they commenced opening their blooms outside towards the end of the month, and are now past their best. This applies to plants in sheltered positions, while those more exposed are now in full beauty. *R. blandum* (as known in this neighbourhood) is the earliest, and by far the best early variety I am acquainted with. Its flowers are a beautiful blush or pale pink when they

expand naturally, and pure white when forced in heat. Under cool treatment the flowers, though much lighter than those produced outside, are slightly tinged with pink, which gives them a more beautiful and delicate appearance. In gardens where choice early flowers are in daily request this variety should be grown in quantity.

R. blandum is compact in habit, very hardy, and partakes of the *R. Nobleanum* and *R. caucasicum* character. Its foliage is better than the former, and the buds set more freely: in fact, with very rough treatment it seldom fails. Frequently lifting it for forcing appears to make it even more free in this respect. It stood in the grounds here uninjured during the winter of 1880-81, when large plants of *R. Nobleanum* were killed. I was informed a short time ago that *R. blandum* was raised out of the same batch of seedlings as *R. caucasicum album* (Cunningham's dwarf white), *R. c. pictum*, Jenny Lind, and a few other varieties. *R. Nobleanum* flowers a little later here than the first-mentioned, and is invaluable for outdoor planting as well as forcing, especially the bright scarlet variety *coccineum*. The foliage of this variety is generally injured by insects while making its growth. With me it does not set its buds freely the following season after being forced. *R. Jenny Lind* flowers at the same time as the last-named, and is distinct—its only recommendation. In habit it is rather loose, and does not flower very freely.

The *caucasicum* varieties are invaluable; *album* and the variety *pictum* flower about the same time. The latter when forced in moderate heat and then placed in a shady position is even more delicate and beautiful than when allowed to flower naturally. *R. c. album compactum* is a very dwarf compact-growing variety, and forms a capital succession to the preceding varieties, and is very useful when forced in early spring. The flowers are pure white and slightly fringed; the leaves are neat but rather small.

I shall not enumerate a large number of varieties, for those already named are decidedly the best and most useful for early flowering either inside or out. For real service one or two good varieties are sufficient, and if confined to one only, *R. blandum* would be my selection in preference to all others.—W. BARDNEY.

PETROLEUM AS AN INSECTICIDE.

I CAN fully endorse "SINGLE-HANDED'S" statement on page 239 respecting the usefulness of this oil when mixed with softsoap and warm water, say from 95° to 100°, for many kinds of plants, especially *Gardenias*, *Stephanotis*, &c. I have very healthy plants of the former well set with buds, which a few months ago were infested with mealy bug and green and black fly; but since giving them a weekly syringing with the above mixture I have not the least trouble with them, and not an insect is to be found.

There are five Peach houses here, all of which are more or less infested with the black aphid, a most troublesome pest, but with the aid of petroleum, hot water, and soap, I live in full hope of entirely exterminating it in the autumn as soon as the fruit has been gathered; but were I required to get rid of the pest with anything but the above mixture at the same cost, I should regard the task as a hopeless one. I consider petroleum a gardener's friend, but would advise beginners to be cautious in applying it, especially if soda is added, as I have seen plants much injured thereby.

I was delighted to see such an authority as Mr. Taylor recommending its use for Vines, and having Vines under my charge infested with mealy bug I intend using it more largely than ever. The smell arising from plants which have been syringed with the mixture soon passes off.—W. J., *Durham*.

ROSE CUTTINGS FAILING.

I AM sorry that "W. M." and his friend are not the only persons who have failed this mild winter with Rose cuttings, for those inserted last September are almost if not quite as bad as those mentioned in the Journal on page 232.

I have often thought that more trouble was taken with H.P. Rose cuttings than was necessary, for previous to this season I have been able to strike 90 per cent. without the aid of glass. My plan is to make the cuttings with heels and insert them at least 6 inches deep, taking care to have the heel surrounded by sharp sand, then treading them in very firm, taking no further thought until frosty weather, then covering all over with bracken until spring. From such cuttings I have cut blooms the following summer which have been placed in first-prize stands in respectable company, so that I attribute the failing entirely to the past mild winter; for no doubt Rose cuttings, like all other half-hardwooded plant-cuttings require a long time to callus.—J. MALLENDER.

I HAVE much pleasure in giving "W. M." the benefit of an experiment with Rose cuttings made without my knowledge by

my wife, who is a great lover of Roses, and tries all means to increase her stock.

Some time in August of last year she took cuttings having a ring of the old wood at the base and inserted twenty on a spent hotbed under a handglass, twenty in the open ground under a glass, and twenty without glass. In November I potted twelve from the hotbed and placed them on a cold frame under glass. Most of these are now nice plants with three or four shoots from the ground. From the open under the handglass I potted thirteen, of which ten are now doing well. Those without protection all died except two, and my man, not knowing about them, hoed those two up.

From this I should say that the quickest and safest plan is to raise them on an old hotbed under glass.—WM. H. CROSSLEY.

SEEING a paragraph in a recent impression about Rose cuttings failing, I write to say that early last November I told my gar-



Fig. 55.—*Dendrobium bigibbum superbum*. (See page 277.)

dener to put in several hundred cuttings of strong-growing varieties in an open border without any protection, south exposure. They are looking most vigorous, having shoots an inch long, and I think they are nearly all alive. The frost and snow we lately had does not seem to have hurt them at all. I think that placing lights over the cuttings was the chief cause of "W. M.'s" failure, as it entails delicacy of constitution.—C. A. HANBURY, *Belmont*.

REPLYING to a correspondent (page 232), I would observe that I always insert a number of cuttings about October. The wood must be thoroughly ripe, and whenever possible I give preference to a cutting about 6 or 8 inches long with a heel. There are several varieties that this cannot be readily secured. I then procure boxes, say 10 or 12 inches deep, and fill them with friable loam to the depth of 4 or 5 inches. The cuttings are protected during severe winters, but especially against the keen winds peculiar to the months of March and April. Half a handful of sand is placed at the base of every cutting. By this method three-fourths generally succeed in the open air.—W. J. M.

"W. M.," on page 232, asks how Rose cuttings inserted last autumn have succeeded with Rose-growing readers this winter. I inserted about two hundred last November, and believe by their appearance that nine out of every ten will live and grow. At present the young shoots or buds are only just starting into growth. The cuttings, mostly Hybrid Perpetuals, were prepared about a foot in length and inserted firmly in the ground, half of which were on a border facing north, the rest on a border facing the east, in rows a foot asunder and 6 inches apart in the rows. No protection was given except that afforded by the wall a little distance off.

"W. M.'s" failure I should attribute to the cuttings having been taken off at least a month too soon, and being placed in a position where the sun excited them into premature growth before any roots were properly developed to sustain that growth. The buds that started and looked so promising were without doubt supported by the sap stored in the cutting, and when exhausted failure would ensue. A few years ago I inserted a batch of cuttings on a south border in October. The weather proved fine and the sun shone brightly for a month or so afterwards, and I observed at the time that the leaves withered and the bark shrivelled a little. That made me doubtful whether they would take root or not, and such proved to be the case, for only about a quarter of them lived. The winter that followed was a mild winter. Since that time I have always chosen a north or east aspect with success.

An essential rule is to insert the cuttings firmly, about half in the ground and half out, as soon as possible after separation from the parent plant, and, if the ground is not naturally moist, to sprinkle it with water daily to keep the foliage fresh; but after November Nature furnishes moisture enough for them till the spring. The blooms from Roses in a north aspect prove very serviceable in late summer after others in a more favoured position have done flowering. Although shade is recommended for Rose cuttings it is not a good plan to insert them under the shade or drip of trees.—A. HARDING.

YOUR correspondent "W. M." complains of his Rose cuttings failing. If he had followed the instructions you gave last summer he would have been as successful as I have. Last August I filled a large frame with Tea and H.P. cuttings, and they are now splendid. So vigorous is the growth of some, such as La France and A. Rigotard, that I do not quite know what to do with them. They are too crowded, nearly the whole of the cuttings having taken root. Will you tell me what I ought to do with them?—F. PAGE ROBERTS.

[Probably the best plan would be to place them in small pots at once and keep them rather close, moist, and shaded for a time in a frame, ventilating cautiously at first, then freely, until they will enjoy full exposure and be subsequently planted out. An alternative plan is to remove the frame as soon as it is safe to do so, and let the plants grow until the autumn, and then rely on the principle of the "survival of the fittest." This is the easiest method; and the other would only prove the best if the potting were carefully done, and the plants well attended to afterwards.]

TWO GOOD APPLES.

I HAVE noticed in no late selection either of the two fruits to which I venture to call the attention of your readers. True both are very old varieties, but this should be no reason for their being discarded if they prove, as they really are, superior to many kinds lately brought under the notice of fruit-growers. One is, perhaps, the earliest, if not one of the best-flavoured Apples grown—viz., the Eve. The tree is a vigorous but not a coarse grower, a great bearer, and very hardy. The fruit is fully ripe in July, and sometimes even in June. In shape it somewhat resembles the Tankard, with a rich bloom on the side exposed to the sun. The colour is a delicate pink, not unlike the Northern Spy; the other portions of the fruit are of a light yellow colour, and it is altogether in appearance and quality a first-rate early market Apple.

The other is with me one of the latest and longest keeping Apples. The tree is of excellent habit, and in heavy soils one of the best bearers I know. This is the Hambledon Deux Ans. A better bearer of good-sized handsome fruit or a longer-keeping variety I think does not exist. Four trees in an orchard of six acres here, and in which upwards of forty different sorts are grown, are found more productive and profitable than any twelve trees of other kinds. I need scarcely point out to practical cultivators who grow for market the importance of early and late crops in the considerations of profits. Early Apples bring good prices before the market is glutted with the general supply, and the late fruits generally command a ready sale. Hence the importance of good selections for early and late crops.—P. J. KANE, *Meath*.

THE ORIGIN OF THE DOUBLE PINK.

IT is not easy now to determine where and when the first double or laced Pink originated. Undoubtedly *Dianthus deltoides*, *D. plumarius*, and other varieties, were grown as border flowers from a very early date, but the laced varieties are unquestionably of more recent introduction, and I think it is not very probable would originate simultaneously in England and Scotland. For

the following reasons I am inclined to think Scotland may justly claim the honour of introducing the Pink in its improved form, and raising it to the position it now holds as a florist's flower. John Abercrombie, in the second volume of the "Gardener's Pocket Dictionary," published in 1786, gives a list of Pinks, but there is no mention of a double laced Pink. If such had been known in England *then* he would not have failed to have mentioned it, and at this very time I believe the Paisley florists were competing with the laced Pink at their shows.

In Sweet's "Florist's Guide and Cultivator's Directory" for November, 1827, part 45, page 17, a Pink, Style's Hero, is mentioned. The following extract from the "Gardener, Florist, and Agriculturist," published in London in 1848, vol. ii., page 319, from an article headed "History of Florist Flowers"—"The great improvements made in the Pink are of very recent date, and hitherto chiefly if not wholly confined to this kingdom [meaning, I presume, England]. In short, we may venture to assert that a Pink called Major's Lady Stavordale, raised from seed in the southern part of England by the person whose name it bears, was the first that deserved to be classed amongst such as are now held in esteem by florists. It was raised from seed about forty years ago, and was the first Pink possessed of that singular and beautiful ornament called a lacing, which is a continuation of the colour of the eye round the white or broad part of the petal, which gives it a most elegant appearance."

In the *Gardener's Chronicle* for October 6th, 1845, page 632, I find, in reply to a correspondent, a Scotch Pink Hector recommended as one of the best twelve varieties grown, but Scotch Pinks had found their way to England long before this time.

Assuming the Hacket or Hawkhead Monster to have been the first laced Pink grown in Scotland, or at least in this part of Scotland (Renfrewshire), it was in cultivation long previous to Major's Lady Stavordale. If Mr. John Finlayson took his son James when a boy to see this Pink growing in a neighbour's garden, this must have been upwards of ninety years since, or more probably a hundred years ago. Mr. James Finlayson (his father John was dead long before this time) was an aged man when I knew him first, now some fifty years ago, and I find that Mr. John Finlayson took first prize for a Pink, or Pinks, at the Paisley Show so far back as the 7th August, 1794.

It is therefore evident from this that Pinks were cultivated as florist flowers at that time, and it is but reasonable to infer they had been introduced a considerable time previous. I know that a few years after this in 1803, 4, 5, 6, and 7, there were a number of keen Pink growers and competitors in Paisley. Old Mr. John Laird and Mr. A. Duncan were amongst the prizetakers at that time. In fact, to be particular, in 1804 and 1805 Mr. John Laird was first, and in 1803 Mr. William Rose was first, and coming down to 1808, about the year Major's Lady Stavordale was raised, I find Mr. A. Duncan first for Pinks at Paisley.

There were Pink growers in other parts of Scotland at this time. I had an uncle, Mr. James Frame, gardener to the Duke of Hamilton, at The Wham, Chatelherault, Hamilton, seventy years ago. He had a large collection of laced Pinks, amongst which I distinctly remember the Hacket or Hawkhead Monster. He was the first I ever knew who grew them in pots, and he told me they made good plants in pots. I have found from experience such to be the case, and am only surprised they are not more extensively grown as such.

The system I adopted was as follows—The cuttings were inserted in small pots, and when rooted in February, sometimes March, but the earlier the better, I repotted them into 6 and 7-inch pots, employing soil from an old lea field, a little well-decayed cow manure, and a little leaf soil, pressed moderately firm. A good supply of water was given, and they were plunged in coal ashes. I was careful in giving good drainage, never allowing the soil to become dry. During the year I used to give them regular supplies of soot water prepared by placing some soot in a bag, and plunging this in a tub or barrel of water.—GAVIN MCGHIE.

PEDIGREE SEEDLING ROSES.

I HAVE always admired the calm silence in which Mr. Bennett endured the rather pelting storm of adverse criticism which has assailed his first set of pedigree seedlings. He is evidently one of those men who does not know what it is to fail, and therefore is certain in the end to succeed. At any rate, at last we have his answer in the shape of a fresh batch of equally interesting new Roses. Let us hope that the Hybrid Perpetual parentage in these may be more prominent. One of them which has been figured, and which I have before me, is a cross between *Devoniensis* and Victor Verdier. It is most charmingly Victor Verdierish, but of a much lighter "celestial rosy red," almost too much like La France

I should fear, but that is only my impression from the feature; and if tolerably distinct and sufficiently robust, who would not welcome another *La France*? It is styled *Lady Mary Fitzwilliam*. There are five others in the list, three being crosses between *Teas* and *Hybrid Perpetuals*, the other two between *Marquise de Castellane* and *Ferdinand de Lesseps*, and *Mabel Morrison* and *E. Y. Teas*. Amongst new French Roses, the two *Mr. Bennett* seems to recommend are *Etoile de Lyon*, a sulphur yellow Rose, and *Violette Bouyer*, a white flesh colour seedling from *Jules Margottin*. If this is a white Rose it ought to be an addition, but *Mr. George Paul's*

White Baroness is probably the most hopeful acquisition of that kind. Shall we ever have a really good white *Hybrid Perpetual*?—A. C.

LEEAE AMABILIS.

PLANTS distinguished by the rich colours or graceful form of their foliage have now become abundant in English gardens, but amongst all those, that now represented in these pages, *Leea amabilis*, is not excelled in the clearness of the variegation and



Fig. 56.—*LEEAE AMABILIS*.

elegance of habit. At the last meeting of the Royal Horticultural Society the Floral Committee signified their appreciation of the plant, then exhibited for the first time, by unanimously awarding it a first-class certificate, and it was the general opinion of the horticultural visitors to the Promenade Show on that day that it was the most pleasing fine-foliage plant which had been exhibited for some years. At the Royal Botanic Society's Spring Show, on the following day, this expression of general admiration was confirmed by the award of a certificate. It was also noticed that the plant appeared to better advantage there than it did in the somewhat dark Council-room at Kensington.

The introducers of this handsome novelty, Messrs. J. Veitch and

Sons, Chelsea, obtained it from Borneo through one of their collectors, so that it requires the temperature of a stove to secure it in good condition, especially if it is desired to forward its growth; but doubtless well-established plants will thrive in an intermediate house. As shown in our engraving, the leaves are pinnate, each having two pairs of leaflets, and a terminal one, all of equal size—namely, 3 or 4 inches long by 2 inches in breadth at the widest portion, and tapering to the apex and base. The ground colour is a deep velvety green, with a clearly defined central band of silvery white—most effective and distinct. The young leaves are remarkably pretty, of a reddish bronze tint. The habit is compact, while the plant appears to be a strong and free grower, and is

not at all likely to present difficulties to the cultivator. It will undoubtedly take a high place in all large collections of plants when it is placed in commerce.

Our engraving (fig. 56), represents a reduced drawing of a small plant in Messrs. Veitch's Chelsea nursery. The form and markings of the leaves are faithfully depicted.

GALVANISED WIRE AGAIN.

I HAVE thought the following facts and enclosed specimens might be interesting to you and some of your readers. I had read with interest, and I hoped with profit too, the able articles on the above subject which you gave us in the Journal some fifteen months ago, and began to think that the mysteries in connection with the different effects of the use of galvanised wire for horticultural purposes were pretty well cleared away; but at the present moment I am again in doubt on the subject.

Last December we used some remnants of galvanised wire diamond trelliswork, and trained some young Roses to it. This trellis had been previously fixed in another position about eight years ago, but the Roses then trained to it, though of several years' growth and in fine condition, did not thrive afterwards. The trellis was taken down and stowed away on the roof of a shed until about two years ago, when half of it was used for making a light fence, on which we trained plants of Clematis and variegated Honeysuckle alternately. These plants have made plenty of growth, twining closely round the wires without the slightest symptom of any injury. The remainder of the trellis was put up last December, as stated above, and the Roses tied to it, with the result, as you will observe by the examples I send, that without exception every portion of the plants that came in contact with the wire was blackened through and killed. Mr. Wright proved by experiment that Vine shoots were uninjured by contact with three-year-old galvanised wire, but here are Rose shoots killed after the wire has been exposed eight years, and yet we have galvanised wire arches covered with Clematis, and under glass Stephanotis, Bougainvilleas, Dipladenia boliviensis, Lapagerias, and Maréchal Niel Roses trained to galvanised wires several years without injury.—G. DUFFIELD, *Winchmore Hill, N.*

[The shoots are very severely injured. It has been proved that some wire is comparatively safe, other samples being decidedly injurious, and that the injury is greater within the smoke radius of towns than in the purer air of country districts. See page 588, vol. i., and page 2, vol. ii., new series. Two or three coats of paint will render galvanised wire innocuous to vegetation.]

FERTILISERS.

A PRESS of other matters has prevented my replying to "INQUIRER" (page 236) sooner, but an opportunity now offering, I hasten to do so.

Your courteous correspondent raises, in the first place, the question whether the artificial application of potash be necessary. He says he "lately heard from a gentleman who has the best means of knowing what is the practice of the agricultural chemist; that the chemist, in returning the fertilisers of a manure, does not, unless specially requested to do so, take any notice of the potash that may be present." This rather surprises me, for I had thought that with nitrogen and phosphoric acid scientific men were agreed that potash should be associated in a generally applicable manure. I was perfectly aware that much land, nearly all loam and clay soil in fact, contain what may be regarded as an almost inexhaustible supply of that compound, and that in such instances its application would be useless. When a soil contains from 1 to 2 per cent. of available potash in addition to what is contained in the fragments of rock, which form the bulk of all soils, it may be regarded as settled that for agricultural crops any application of potash would be quite useless. Many thousands of cultivated acres, however, contain no more than 1 per cent., and though, theoretically, this is a sufficient amount to supply the necessary potash for many crops, practically it is found that it is profitable to add potash. We know one scientific farmer who finds that even sulphate of potash applied alone to the corn crop, although benefiting that crop little, markedly affects his second crop of hay by causing a luxuriant growth of Clover, which is only moderate unless helped. Yet his soil contains 0.12 per cent. of potash.

It has been calculated that 0.1 per cent. of potash in the upper 6 inches of soil is equal to a ton per acre. As a crop of Potatoes amounting to ten tons per acre would not remove more than 100 lbs., we might say that before such land could be exhausted of its potash twenty such crops could be raised before the necessity for potash could arise. Practical men find, however, that

it pays to add potash at least to the Potato crop, even when there is a ton per acre lying available.

The application of carbonate of potash alone to land containing 0.5 per cent. in America, increased the Potato crop repeatedly from 150 to 200 bushels of Potatoes. Even on our land the crop increased largely when carbonate of potash was applied, and this land contains potash available for 180 crops of ten tons each per acre—that is, theoretically. As a matter of fact, we have made many experiments—practical, not scientific ones—and have been completely bewildered thereby, and unable to come to any conclusion. With the help of superphosphate and nitrate of soda alone we have raised thirteen tons of Magnum Bonum Potatoes per acre. The inference of this would be that all that our land needs is phosphoric acid and nitrogen, and that the supply of potash is sufficient, as in one sense it is. But with a mixture of sulphate of ammonia and carbonate of potash we have done the same. The inference of this is that only nitrogen and potash are wanted, and that there is enough of phosphoric acid. With sulphate of ammonia and lime the same results can be obtained, the inference being that neither phosphoric acid nor potash is wanted. With only wood ashes the same amount may be raised, so that not even nitrogen seems to be needed. Yet with no application the crop is under six tons. The fact is there is enough of everything in our soil to raise one or two moderate crops without any application, but the application of almost any plant-food—salt and soot even—increases the crop. Such treatment is only practical and far too inexact to claim to be called scientific. It satisfies us, however, that in order to maintain it in full productive fertility we cannot better do than return as nearly as possible what is taken out. It may be granted at once, though, that for grain crops only phosphoric acid and nitrogen need be applied. We find that one cart-load of manure, prepared by being sprinkled with sulphate of potash at the rate of 4 lbs. per ton, produces an effect equal to ten of unprepared manure. Whether this is brought about by the potash or the sulphate of ammonia we are not in a position to say, but believe both have some effect.

That chemists do value the potash, and recognise the fact that it is often wanting, the following quotation proves. The words are Dr. Voelcker's, and his authority is second to none. "What they should do was to endeavour to convert cheap materials into more expensive ones—to supply the deficiency of any material, whether potash, phosphoric acid, or nitrogen, in a cheaper form, and to convert it into produce for which a higher price could be obtained." Any number of quotations could be made to prove that we have not valued potash higher than we ought, nor higher than is commonly done. The above we quote just because it came handy and saved us searching further.

"INQUIRER" wishes me to revert to the following. "He says that it takes time to convert the sulphate into the carbonate, 'in which state potash is alone available practically as plant food.' Is your correspondent right in this?" No: that was an unfortunate slip of the pen. What was meant was that the sulphate was practically unavailable until it was converted into the carbonate.

Your correspondent wishes me to again consider the question of the conversion of the sulphate of potash into the carbonate, and the otherwise escaping ammonia into a sulphate. I cannot do this better than by making the following quotation from the *Agricultural Gazette*, where it appeared some time ago. "I [Mr. Clement Cadle] consulted with Mr. Embry, one of the science masters in the Government Science Schools at Gloucester, and as the proposal (the chemical reaction in question) appeared to be chemically correct, the experiment was carried out with the more confidence. A quantity of fresh horse dung was taken to the Science Schools and placed in a large stone cistern, and between different beds of manure of a few inches thick we scattered the kaint. The smell of the dung was strong and offensive, and the pupils complained of it on the day it was mixed, but in a few hours the smell entirely disappeared. On the following day and subsequently no smell was observed; and when Mr. Embry tested the manure chemically three months after, he found a mutual exchange had been effected, and instead of sulphate of potash and carbonate of ammonia evolved from decomposed manure we had carbonate of potash and sulphate of ammonia."

There is this difference between agricultural and horticultural chemistry—a soil with the plant food spread thinly through it may raise full corn crops, but the same amount of food would grow even the commonest vegetables but very poorly. The consequence is that even the most fertile agricultural land would not grow satisfactory crops of vegetables. Even 2 per cent. of phosphoric acid, potash, and nitrogen, although almost too much for Wheat, would not suffice for Cauliflowers. Garden crops really take so much from the soil that gardeners have to ignore to a great extent

the natural store of food. It does not follow that horticulturists can afford to neglect the teachings of chemistry; rather, they have greater need to study it.

In the article referred to we selected a common case. We supposed a garden long cropped with ordinary vegetables taking more potash than phosphoric acid from the soil, and long enriched with manure containing more phosphoric acid than potash. Such a garden might be supposed to have a useless store of phosphoric acid, and this we proposed to utilise by employing more potash and much less phosphoric acid. To those who could obtain urine we advised the use of that for a time because of its being rich in potash, salts, and nitrogen. To those who could not get such we thought that sulphate of potash used with manure might supply the want at a cheap rate, save the ammonia otherwise lost, and enable the cultivator to avail himself of his otherwise useless phosphate.

At present neither the time nor the space at our disposal will allow more, and if the difficulties raised by "INQUIRER" have not been fully explained to his satisfaction we shall be pleased to return to the subject. Nothing is of more importance, and a full discussion would be useful.—SINGLE-HANDED.

QUEEN WASPS.

I CANNOT understand "DUCKWING'S" remarks about queen wasps (page 260). He says, "I can answer for the fact that the spring and autumn wasps were in an inverse ratio as to number." In other words, the larger the number in spring the less in autumn. Does he also consider the reverse will hold good? If so, we may assume that if there were no spring wasps there would be numerous swarms in the autumn.

He and the Rev. J. G. Wood certainly differ on the subject, as the following extract from "Homes Without Hands" will show—"At last"—i.e., at the end of the season—"the entire population deserts the nests, the workers die, and so do all the males; the majority of the females die also, some from exposure to cold, others by a violent death. Those, however, that are fortunate enough to find a crevice in which they can lie dormant during the long months of winter creep into it, and there remain until the following spring, when they emerge to be the queens and mothers of future colonies. The reader will now comprehend, that whenever a wasp is seen in the springtide it is one of the females which has survived the winter, and is about to found a new colony. Those, therefore, who pride themselves on their wall fruit will do well to kill such wasps, inasmuch as a single queen wasp in spring is equivalent to many thousand wasps in autumn."—C. T. H.

CULTIVATION v. MANURE.

THE enclosed letter, written to me by one of the most successful cultivators I know—Mr. Lovell of Weaverthorpe, and recording his own actual experience in a matter where he has been distinctly successful, seems to me so likely to be interesting that I beg to ask your insertion of it. Though the facts given and the theories upon which they are based cannot be new to a few old students of horticulture, these taken together with the practical result obtained make Mr. Lovell's remarks in a time like the present, when we defer so largely to practical results, of the greater value.—R. BAILEY WALKER, F.S.S.

"I keep no live stock, nor shall I. I can always buy what manure I require, but I hold what to some would appear to be strange notions. In the early ages of the world plants had to grow without manure. The plants had to grow first from the bare rock, and animals had to feed on them before there was any manure. Now we have the accumulated deposit of ages, which only requires cultivation to supply the elements of nutrition that a plant requires. Hence on good soil cultivation is an equivalent for manure. Thoroughly good soil allows a free passage of the circulation of the air. The gases of the air act and react on the soil, and set at liberty the latent fertility of the soil, or supply food direct to the roots and leaves, so that every time we stir the soil it gathers a supply of riches from the air. The gases of the air are inexhaustible, and so are the locked-up treasures of good soil; it only needs disintegration and pulverisation to yield food for a hundred or even a thousand crops. Thus on a piece of such land put into cultivation I would grow a crop of Wheat year by year of four or five quarters, which might be sold at 40s. per quarter, and still leave a profit after all the expenses of cultivation were paid, without any manure at all, simply depending on cultivation.

"The ordinary practice of farmers, and even gardeners, is to hoe only to kill the weeds. An advanced cultivator would hoe or dig it over, even if there were no weeds, for the purpose of aerating the soil and allowing free circulation to the gases from the air. Soil worked in this way (good soil I am speaking of) is in a great measure self-supporting for moisture, and also for gases of the plant which can be absorbed by the roots. I have been an experimenter for the last

twenty years with soils, manures, and plants, and have learnt from failure as well as success. Such a thing as a failure of a crop of fruit from Strawberry plants never enters my mind. 'Work is prayer' was the motto of the monks of old when they cultivated their land, as it is with me. 'Work is prayer,' and 'Cultivation is manure,' are the two leading principles of my life.

"Nothing is easier than to produce disease in plants by feeding them with gross manure, especially if of a stimulating nature or in a liquid state. Feasting plants brings on disease and predisposes to disease. As with animals so with man; and when I say that man might live to a hundred years or more I argue in this wise—Men live to eighty who have spent their lives feasting and fasting, drinking spirits and smoking tobacco, breathing impure air (in bedrooms at night especially), and drinking polluted water, the pores of the skin clogged with the accumulated deposit of years, besides other excesses. In spite of all this living, in defiance of the laws of life, men live to eighty or ninety. Yet is it any wonder that man is subject to disease? No, the wonder is that he does not suffer more. If after abusing and wasting life, as is the too common practice, disease did not make its appearance I should be inclined to doubt the truth of that wise law of Nature which ordains that punishment shall follow breach of law.—W. L."

AN AMATEUR'S GARDEN.

A DESIRE to hear about a few of the triumphs of amateurs has been recently expressed in the Journal, and that has induced me to enumerate a few of the good things I have had from my garden lately. On Christmas Day we had a good Cucumber hanging (Wheeler's Empress, and a good variety it is), but did not cut it until January 1st. Since then we have had one to two per week 12 to 18 inches long, until about three weeks ago, when I had to commence a contest with red spider. I have won so far, and I have now again two fruit hanging 9 inches long and others coming on. Mustard and Cress we have at all times. Apples, stored (from an orchard), the Wellington being the best for kitchen by far. Potatoes of the Magnum Bonum variety are of excellent quality with me. Outdoor Leeks not quite 5 lbs. in weight, but 1½ inch in diameter and 8 inches blanched. Parsley we have indoors and out. Mint was ready by Christmas, but much more is wanted at Easter for the lamb; and Cabbages were quite fit to cut last week, but were not wanted, as we still have Seakale and plenty of Broccoli and Greens; but, alas! no Mushrooms this time.

In a house which I built last year the Vines have started well; the leading shoots are about 6 inches long, and are showing very large bunches of flowers. Peach trees planted in the winter are in leaf, clean, and healthy. Some of my flowers are good; about thirty Cinerarias are in full bloom, each 1 foot high in the pots, and the heads of flower are nearly as much in diameter. Of Roses I shall have a succession for some time. I have also some very fine Calceolarias. Here is another trouble; I want a cool house, but must not spend any money this year, so I have filled a frame with the best plants placed on ashes, and they would please anyone who loves flowers. The others are coming into bloom in the house; they will be pretty, but will run up I think.

I must not omit to mention that I have fifty pots of Strawberries in fine bloom; some of the plants placed under cover first have the fruits swelling, and I also have many Coleuses, Begonias, and a few Ferns. My seedling Coleuses, Cockscombs, Verbenas, Pyrethrums, Capsicums, Balsams, and also Tuberoses and a few Liliums are coming on well.—AMATEUR.

PITCH PINE AND OTHER GARDEN LABELS.

I QUITE agree with Mr. Wolley Dod's view of our respective labels. No. 6 wire cannot be attached to the label by my method because it is too thick to be pliable, and labels are wanted that can be made simple and neatly. I cannot see a better way in attaching a wire of that thickness than the one Mr. Wolley Dod has pointed out. True, labels will have to stand many casualties when fixed in the border, and unless they are strong they will soon be ruined. Even good strong wooden labels are thrust out of their places in many ways. My mode of making labels will answer very well for pots and various other purposes.—G. GARNER.

A QUESTION was raised at the last meeting of the Horticultural Society on the subject of pitch pine. We find by reference to commercial and botanical books that the pitch pine of English commerce is the wood of *Pinus australis*, the "Swamp Pine," a tree not grown in England, but abundant on the seacoasts of the south-eastern States of North America, especially Georgia, from which it is imported to England. It appears (see Gordon's "Pinetum," index of popular names) that the wood of two different trees is called in America pitch pine, the other being *Pinus*

rigida, a tree growing in the uplands of the United States, the timber of which is comparatively worthless, and is not imported into England (see "Penny Cyclopædia"—"Deals.") This pitch pine has been strongly recommended to me as suitable for making garden labels, and I will speak of it presently. During the last fortnight I have been busy continuing my observations and experiments on labels. As regards dressings to prevent mildew, I have tried several on labels of boxwood, subjecting them to severe tests. First, confinement in an ill-ventilated cellar; second, enclosing in a hotbed. In both places the labels soaked in paraffin show spots of mildew in a fortnight, quite as soon as those without any dressing at all, and it gradually spreads until the whole surface becomes discoloured. The most efficient preventive I have yet found is a solution of chloride of zinc, in which the labels are soaked for a week; but even after this slight spots of mildew are observed on those which have been in the hotbed for a month. The use of boxwood being attended with this trouble, it may be questioned whether it is a suitable wood at all for labels, and whether deals are not preferable. I think they are.

Messrs. Wolstenholme have made me some very neat oblong perforated labels of pitch pine, suitable for attaching to upright wire standards. They are sawn, and would be better for having one side planed, as presenting a smoother surface against the adherence of dirt; but I am not sure that pitch pine is the best wood for this class of labels. It is easily written upon with a very soft pencil, such as Cohen's parcel pencil, if very slight pressure is used; but if a common hard pencil is used the dark ribs of the pitch pine, which mark the edges of the rings of annual growth, are so much harder than the wood in the intervals as to make writing on them unpleasant and the result untidy.

I have lately received from Mr. Bradley two or three packets of patterns of plant labels, accompanied with a full discussion of the merits of each, and many of his remarks are sound and practical. He says that he has paid more attention to the attainment of cheapness and legibility in labels than of durability; and no doubt nurserymen would agree with this principle, though amateurs might differ. He considers common yellow deal (the wood of the Scotch Fir) the most suitable, as affording the smoothest and the least varied surface. It also has this advantage, that the grain of the wood is so even and yielding, that an ordinary hard lead pencil makes so deep an impression on the wood that the writing will continue legible, however dirty the surface may become. It remains, however, to be seen what effect long exposure to weather may have upon the sunk marks made by the pencil.—C. WOLLEY DOD.

[We have used both pitch pine and yellow deal labels, and prefer the latter, for the reasons above indicated.]

GARDENING IN MOIST DISTRICTS.

THE remarks under the above heading in the Journal of March the 9th, page 196, rather surprised me. Having served several years in a garden in the same county, perhaps a few notes may be acceptable. I think the soil in your correspondent's locality must be partly the cause of his non-success.

I have seen different varieties of the following plants flower very freely, the soil being very retentive—quite a clay, but well manured. The spring bedding plants comprised Auriculas, Polyanthus, double Primroses, red and white Daisies, Pansies, Wall-flowers, Myosotis, Violets, and Snowdrops. In summer the beds were filled with Pelargoniums, Lobelias, Verbenas, Heliotropes, Cupheas, Petunias, Mignonette, Asters, Stocks, Calceolarias, Carnations, and Dahlias, also a few annuals, which made the garden look quite gay in summer. Roses, unless well sheltered, suffer considerably; the westerly winds have a great effect upon them. The growth of trees in exposed situations is chiefly on one side for four or five miles from the sea. Here in the west of Ireland where the soil is shallow and porous, no plants suffer in ordinary seasons except Coleuses and Alternantheras. Clematis Jackmanni trained upon trellises pyramid shape 5 feet high, delight in the moist climate, and beds of Agapanthus umbellatus flower most profusely, and with a little protection they stand the winter well.—J. RICHARDS, *Ashford*.

GLASGOW SPRING FLOWER SHOW.

THE above Show was held in the City Hall, Candleriggs Street, Glasgow, on Wednesday, the 29th ult. Considering the great loss sustained by the Society by the death of its late President, A. B. Stewart, Esq., of Rawcliffe, Langside, whose exhibits used to so much enhance the beauty of Glasgow shows, and the absence of one or two other large exhibitors, the Show may be considered to have been fairly successful. Its main faults were most decidedly the want of noble

foliage plants and the too great formality of the arrangements. The first feature that was noticed on entering the Hall was the great untuned blaze of colour; and the next was the almost military arrangement of the Tulips, Hyacinths, and other ornamental spring-flowering plants. We were told at every step that such was the demand in Glasgow, but we venture to hope that the Committee have misinterpreted the taste of Glaswegians; that they themselves saw their mistake, and that by another spring a few Palms and Tree Ferns may be secured to make the Glasgow Show what it used to be when graced by the choicest Palms, Ferns, Cycads, and other foliage plants.

The most attractive table in the Show was undoubtedly that for exhibition by David Tod, Esq., Eastwood Park, Thornliebank. This was filled wholly with choice Orchids, Amaryllidaceous plants, small Ferns, &c., gracefully arranged. W. P. Taylor, Esq., of Leith, had a large table filled with fine market plants of Spiræas, Azaleas, and Lily of the Valley arranged in broad bands in the bedding-out ribbon system. We would hardly recommend its repetition. Smith and Simons, nurserymen, Glasgow, had a table of decorative plants; and Austin & McAslin, Buchanan Street, a large bank of flowering plants, chiefly Rhododendrons and Azaleas. The Roses were wretched specimens, and with the exception of one plant the same may be said of the Ferns.

Possibly the most interesting plants, certainly the most lovely and most admired, were the hardy Primulas staged by Mr. David Forrester, Woodcockdale, Linlithgow, both in the class for Alpine plants and for hardy Primulas, and by Mr. George Forrester, Rosehill, Polmont. Lowly but beautiful and well cultivated they were. For those whose glass erections consist of a frame or two these plants are perhaps the very best. For those beginning we will transcribe the names of those that pleased us most. *Primula denticulata*, *P. helvetica*, and a seedling from it very nearly blue; *P. rosea*, *P. nivalis* (not the true one, but the pure white Auricula-like plant that is commonly called by that name), *P. intermedia*, *P. lutea*, and *P. verticillata*. This last is always staged here among the hardy section, but with us it requires shady greenhouse treatment, and well deserves it.

Spiræas were present in numbers, well-grown plants, and the same may be said of the hosts of Hyacinths and other bulbs. Azaleas were exceedingly well bloomed, and were staged in untuned masses. The somewhat rare *Attaccia cristata* was well represented, and its quaint flowers attracted much attention.

Our space forbids us publishing a complete list of the prizes, but we note a few of the chief winners. Mr. Thomas Hogg, gardener to John Gordon, Esq., Aikenhead, Cathcart, succeeded in obtaining the first prize in each of the following classes for six and three stove and greenhouse plants, three Azaleas, three Rhododendrons, Ferns, Amaryllises, Epacris, and cut flowers. The chief prizes for Hyacinths and bulbs generally were secured by Messrs. Peter M'Kenzie, John Sutherland, Peter Fox, Henry Palmer, gardener to John Addie, Esq., View Park, Uddingstone; James Buchanan, gardener to Thomas Allan, Esq., Kincadie House; — Milton of Campsie; and Duncan M'Intyre, gardener to T. L. Arnott, Esq., Blairmore House. The best table plants were staged by Messrs. D. Chisholm, gardener to Mr. Anderson, Gibbnock; and David Dalglish, Dalmarnock Road. Primulas were contributed by Messrs. Alex. Small, Glasgow; James M'Leod, gardener to John Stewart, Esq., Thistlebank, Helensburgh; David and George Forrester. Messrs. P. M'Kenzie and John M'Leod were the prizewinners with Orchids. Amongst the chief exhibitors of collections not in competition were the following, in addition to those already mentioned. Messrs. Austin & M'Aslan, Buchanan Street, collection of new Azaleas, Rhododendrons, and other stove and greenhouse plants, all in splendid condition, highly commended; Mr. John Clasper, florist, Stevenston, collection of Potatoes; Messrs. J. & W. B. McNeil, Union Street, bouquets. Mr. Peter M'Kenzie exhibited several most exquisitely built and arranged marriage and other bouquets; Messrs. P. & R. Fleming, Argyll Street, lawn mower; Mr. Henry Palmer, double Hyacinths, "Peter the Great;" and Mr. John Sutherland, Lenzie, collection of Hyacinths.

DISBUDDING.

SPRING always brings many duties to the gardener, but few are more important than disbudding fruit trees. Disbudding may be briefly described as a thinning of the young growths where they are very close together on last year's wood. Often these are so close that, were they all allowed to remain throughout the season, they would become weak and never likely to be matured, but if they are left a convenient distance from each other, and can develop freely they will become thoroughly matured.

Trees trained to walls generally require more attention than standard trees, and Peaches and Nectarines may need it more than any other; but at the same time it may be stated that almost all trees which are likely to make a large quantity of young wood throughout the coming season would be benefited by being disbudded in spring. Disbudding is done at different times, but it is always better to do it too early than too late, and it is better done gradually than removing many growths at one time.

Peaches and Nectarines are the first to come into leaf. As a rule the buds on these are very close, and the young growths

appear in masses before they are many inches long. On trees in the open air some approve of allowing most of these to remain for a time with the view of improving the fruit, but plenty can be left to do this. As the young growths start many of them will be found extending towards the wall or at the back of the tree. These do no good, and if allowed to grow soon form a harbour for insects. Therefore in beginning to disbud all the back shoots may safely be taken first. When the shoots are only an inch in length they may easily be rubbed away, and they should be removed altogether. Others, again, will be found growing straight out; these can never be trained in readily, and the best way is to remove them with the back shoots.

This will complete the first stage of the operation; but in a week or two the trees should be examined again, and this time many of the shoots growing along the sides of the branches must be removed. As a rule the young growths should not be left closer together than 1 foot, the best way being to allow a good one to remain near the base of last year's wood and another at the top. This plan will always keep the trees well furnished with healthy young fruitful wood. Sometimes it will be seen that there may be more space above the old shoot than under it to train a young branch, and care should be taken that one is left for this. Crowding the young shoots will never result in any good. One healthy, well developed, and well ripened shoot is worth a dozen small spindly growths. Good wood can only be had by judicious disbudding, and care and labour spent in this direction will always be amply repaid.

Where the young growths are very crowded on Plum, Pear, and all other kinds of fruit trees it is always an advantage to thin them well. Stopping the growths after they have grown a foot will not do, as more growths may start on the same shoot when they are not wanted, but the best way is to remove them. The slightest pressure with the fingers will cause them to fall when they are small, young, and tender, and it is when they are in this state that they may be removed with the least injury and the greatest benefit to the tree. Under glass all kinds of trees may be disbudded almost as soon as the leaves are formed, as the shoots extend so quickly that they would soon become crowded. It will be found that when the fruit is formed before disbudding is finished much of it is very closely connected with the young shoots, and in removing these care must be taken that the fruit is not broken away too.

Vines, too, often need disbudding. On young canes the buds are often far too close together to be allowed to form permanent branches, and many should be removed before they have made much growth. Old spurs generally produce a number of shoots, but one is generally sufficient, and the weak and unfruitful growths should be removed as soon as possible. In all cases the object must be to improve the tree in leaving the best shoots in the vacant places, and above all avoid crowding.—A KITCHEN GARDENER.

FRUIT-GROWING ON CHALK.

AS those who have had practical experience are fully aware, the successful cultivation of fruit on soils in which chalk greatly preponderates is far from being an easy task; indeed, it may appropriately be described as uphill work from beginning to end. Should the attempt be made to grow fruit in the ordinary way—i.e., planting a tree and expecting it to flourish without anything further than the customary training, pruning, and autumnal mulchings of decayed manure, signal failure in the majority of cases is almost certain to ensue. This, of course, applies to soils of the very worst description, and to such fruit trees as Apples, Pears, Plums, Apricots, Peaches, and Nectarines. With small fruits, such, for instance, as Gooseberries, Currants, Strawberries, &c., the case is somewhat different, owing to their being mostly of a surface-rooting habit; still even with these more than ordinary pains are needed to ensure profitable and satisfactory results.

The foregoing, it must be admitted, is simply the gloomy side of the question. It must not for a moment be supposed that success is impossible, or that such a thing belongs only to soils of a more genial character than those we are now dealing with. "Where there's a will there's a way," is an old adage, and one certainly which applies with a certain amount of force to fruit-growing on chalk. It is astonishing what a person may accomplish if he only has the will, receives encouragement, and determines not to be conquered in the struggle. That fruit trees may be made to flourish on extremely chalky soils will not admit of any doubt, but to accomplish this I must confess is a somewhat costly and laborious process. The last course to adopt where failure has hitherto been the only result is to make a fresh start and plant only young trees, say two or three years old, not more than four certainly. Previous to planting, trench the ground to a

depth of 18 inches, and as the work proceeds work in a liberal dressing of well-decomposed manure and any decayed vegetable matter there may be from the refuse heap. Ashes from the burning of prunings and other rubbish may also be advantageously employed in the same way.

Young trees invariably thrive well the first two or three years after being planted; but suffer them to remain longer without any further proceedings being taken, and the penalty incurred will make itself only too plainly visible. Yellow, sickly-looking leaves, which are barely able to withstand the summer's sun, and weak spindly growth are the inevitable results of such a system. To avoid this state of things and to produce a better, the person immediately responsible for the well-being of the trees should make up his mind to resort to that which, under the circumstances, is the only safe remedy—namely, lifting and replanting the trees periodically, say once in three years. By adopting this practice the roots are prevented gaining a firm hold of the subsoil, which is the cause of so much canker and decay, as it also is of many trees dying prematurely, and of fruit of an inferior quality. Wherever this periodical lifting system is adopted, the trees not growing on walls or as espaliers must of necessity be treated either as pyramids or bushes. Grown in this way they become, as regards lifting and replanting, manageable for a number of years, and certainly far more than trees which have been unattended. The above applies to Apples, Pears, Plums and Cherries, also Apricots on walls.

With Peaches and Nectarines unquestionably the best plan is to make and prepare a special border for them, take out the soil 2 feet deep, concrete and drain the bottom, and at a distance of 4 feet from the wall on which the trees are to be grown and parallel to it build a $4\frac{1}{2}$ inch wall of either concrete or brickwork. Now we have to prepare the material for the border. Procure the best turfy soil obtainable in the locality; mix the same with the top soil taken from the border, in proportion of one load of the latter to two of the former; give a fair sprinkling of brick and mortar rubbish, and if the turf is only of an ordinary quality add a little decomposed manure. With this to grow in, and the necessary attention as to training, pruning, watering, mulching, &c., there need be no apprehension as to what the ultimate result will be.—ET CÆTERA.

CUTTING DOWN CAMELLIAS.

I FULLY endorse what Mr. Stephen Castle says at page 240 respecting going to extremes in cutting down Camellias. Unless the plants are in a vigorous state of health the less they are cut the better, unless, indeed, they are so debilitated as to require beheading. I remember well, when foreman in the gardens at Lilleshall, Salop, that we used to cut Camellias with wood 1 to 2 feet long for very large glasses, and the plants appeared to like it. Certainly for health and bloom they were not excelled, but they were liberally treated and grown specially for the purpose of securing plenty of wood with the blooms; had we given them ordinary greenhouse treatment it would have been impossible to cut the number of blooms we did.

When it is desired to restrict the extension of the leading shoots remove the terminal growth as soon as it starts, and thus divert the flow of sap into the lateral eyes, which will then break into growth; but even that process is not always advisable, some varieties being more "shy" than others, although as a rule a greater degree of heat and atmospheric moisture will induce them to start.

I have a large plant of *Camellia alba plena* in my care which last year produced nearly 3000 blooms—1500 more than I would have allowed it to bear if there had not been a higher authority than mine. The result was that the majority of the terminal growth buds "wilted;" the few that were strong commenced growing rapidly in April, and would have taken the entire remaining strength of the tree, and thus have spoiled its contour for several years. Being anxious to retain the symmetry of the plant (which is a dwarf bush some 40 feet in circumference) and obtain at least the usual number of growths, I decided to remove the few growths that had started; and the results more than justified my calculations, although some "wiseacres" belonging to the craft shook their heads when I told them what I intended doing in the matter.—J. U. S.

STEPHANOTIS FLORIBUNDA.—I send you a spray of *Stephanotis* from the same plant as last year. It has been growing all the winter, and now covers the roof and one end wall of a house 22 feet by 14. It is in a 12-inch pot, and has at the present time upwards of a thousand trusses of flowers on it, averaging ten pips to a truss, some of the joints showing two trusses. It bloomed last year and the year

previous for eight months out of twelve.—J. GIBSON, *Brentrey House, Westbury-on-Trym, Bristol*. [The spray is very fine, the variety very floriferous, and the plant is well cultivated. Are all the roots confined to the pot?]

ONE of the finest *Stephanotis* plants I have ever seen is in the Anerley Nursery of the General Horticultural Company, managed by Mr. Bause. The plant entirely covers a lean-to roof nearly 100 feet long and 25 feet wide. It is planted out, is perfectly clean, and must yield many thousands of flowers.—J. K.



KITCHEN GARDEN.

A GOOD breadth of Peas must be sown, selecting such varieties as Criterion, Telegraph, Telephone, Stratagem, and Best of All, also a successional sowing of Broad Beans—Monarch Longpod and Windsor. Choose a sheltered situation for a sowing of Celery; those plants which are raised outside are preferable for the general late crops to those grown under glass. Basil, Sweet Marjoram, and Summer Savory may be sown on a warm border, and replant herbs generally as necessary. Complete expeditiously the planting-out of autumn-sown Cauliflowers, Lettuces, Cabbage for summer use, and Tripoli Onions.

Forcing Department.—Spring-sown Cauliflowers, Brussels Sprouts, Cabbage, Lettuce, &c., when well hardened may be planted out in the open ground. In planting at this season it is a good plan to draw drills 3 or 4 inches deep to place the plants in, as this affords a partial shelter from keen winds. Thin out Carrots and plentifully supply them with water. If necessary Potatoes must also be supplied with water before earthing them; but any that have tubers nearly large enough for lifting should be kept rather dry, as a too moist condition of the soil deteriorates the flavour. Prick out Celery plants into boxes or beds over a slight bottom heat. Pot Tomatoes and remove all side growths, one stem being enough. Make a sowing of French Beans in any pit cleared of early Potatoes or otherwise available, which will afford a supply long before those in the open ground. Cold pits or frames answer for this purpose, sowing in drills about 18 inches apart, thinning afterwards. Supply plants in bearing liberally with liquid manure.

HARDY FRUIT GARDEN.

Apricots generally have now flowered, and the fruit is well set and swelling freely. Thinning will be necessary, removing the smallest and such as are badly placed. The foliage is also good, which will render heavy coverings unnecessary, but the materials should be kept at hand in case frost occurs. Attention must be given to the shoots in good time, removing any strong foreright shoots, and pinching such as it is not considered advisable to retain. Cut back any attenuated spurs, and thin them where they are too crowded. Peaches and Nectarines are in full bloom. In many instances the fruit is set and swelling freely, hence the necessity of affording the trees all the light and air consistent with safety. Disbudding is best attended to early, as soon as the shoots can be rubbed off, and if done in good time there is no need to do it so gradually. Remove those that have not fruit at their base, making a reservation of a shoot at the base of the current year's bearing wood, and another at its extremity. The remaining shoots having fruit at their base should have their points pinched out at the second leaf, or, if that would crowd the tree with too much foliage, remove them. Young trees and those recently planted require the main branches disposed at a distance of 12 to 18 inches apart, and shoots must be reserved about 18 inches distance along them for bearing, and originating at the required distance growths for forming the main branches. Plum and Cherry trees trained fan-fashion should be treated similarly, with the difference that the shoots for forming the main branches should be 9 to 12 inches asunder, and the side growths not required for extension stopped at the third leaf to form spurs; the forerights unless strong being treated similarly, but any gross growths should be removed. Pears should be

allowed a distance of a foot between the branches, and have all growths other than extensions pinched off at the third leaf.

FRUIT HOUSES.

Vines.—See that the borders have plenty of moisture, particularly where Vines are bearing fruit. Supply tepid liquid manure, or sprinkle the borders with guano and wash it in with water at 90°. Grapes that have completed stoning, as also those beginning to colour, will be much benefited if in addition to a thorough soaking with tepid liquid manure at the roots the border is mulched with 2 or 3 inches thickness of short partially decayed manure. Attend to disbudding, stopping and tying the growths as they advance in succession houses, and do not delay the thinning of the bunches and berries. Former instructions having been attended to, late Vines will now be growing. Maintain a moist atmosphere by syringing the Vines and available surfaces several times a day, and close with a moist atmosphere at 75°. Allow the temperature to fall to 55° at night. There should not be any longer delay in starting late Vines, as they require a long season of growth to insure their ripening perfectly.

Figs.—The fruit of the earliest-forced Figs in pots is commencing to ripen, and will need increased ventilation, and syringing must be discontinued. Those trees with fruit still swelling should be assisted with weak liquid manure, syringing at closing time. Free ventilation in favourable weather must be strictly attended to. The earliest Figs where the trees are planted out are swelling rapidly, and should have a night temperature of 60° to 65°, and 10° more by day, allowing an advance from sun heat to 80° or 85°, with free ventilation above 75°. The trees should be well syringed, and as they make rapid growth frequent attention must be given to stopping and thinning the shoots. As soon as necessary proceed with tying the shoots loosely, avoiding overcrowding by removing those shoots not required. A good mulching of manure on the borders is beneficial, and a liberal supply of water should now be given.

Pines.—Plants which started into fruit early in the year have now bloomed, and should be occasionally syringed at the time the house is closed for the day, but avoid damping the fruit of those which are in flower. Although abundance of light is essential to the success of the plants care must be exercised during the next few weeks in the case of houses having large squares of glass; a slight shading for an hour or two at mid-day when the sun is powerful until the foliage has become inured to its influence will be beneficial. Ventilation must be carefully attended to, especially where a high temperature is maintained. A small aperture early in the morning will draw off the damp from the leaves, and thereby render them less susceptible of scorching, ventilating at 80° and closing with sun heat at 85°. Avoid indiscriminate waterings, but give supplies of weak liquid manure whenever the plants require it. As soon as the suckers appear remove all except one to each plant. Keep the air about the plants moist when the house is closed, the night temperature being 70° by day, 75° artificially, and the bottom heat steady at 80° to 90°.

PLANT HOUSES.

Greenhouse.—To obtain Cinerarias for autumn flowering seed must at once be sown in gentle heat, also seed of Primulas for autumn and winter flowering, employing good loam with a fourth of well-decayed manure or leaf soil and a little sand. Petunia seed of single and double kinds can be sown now and fine plants will be obtained for flowering in late summer. Chrysanthemum cuttings inserted some time ago are now ready for potting off. Those inserted singly in small pots should not be allowed to become rootbound, but be transferred to larger pots as necessary, keeping them in well ventilated cold frames. Calceolarias should be encouraged with liquid manure, fumigating frequently to check aphides. Pelargoniums producing their flowers would be benefited by liquid manure, and, the pots being filled with roots, the soil must not be allowed to become so dry as is advisable earlier in the season, or their foliage will suffer. Examine the plants weekly, and if aphides are detected fumigate at once, keeping the shoots well trained out. Plants required for July flowering should have the points of the shoots removed, and if in small pots transfer to others a size larger. Repot Fuchsias, stopping the shoots until the plants are sufficiently furnished, syringing every afternoon. Cuttings now inserted strike readily in gentle heat, and make useful plants for late summer-flowering in small pots.

THE BEE-KEEPER.

BONNER THE SCOTTISH BEE-MASTER.

BONNER'S name is so much more widely known than his works on bee-keeping that I doubt not many readers of our Journal will be glad of a few notes culled from his rare book. Bonner was the twelfth child of a handloom weaver of Coldingham in Berwickshire, and seems to have received a fair education. He followed his father's occupation, and became the author of a work called "Practical Warping Made Easy." His father was an enthusiastic bee-keeper, owning as many as a dozen of hives at a time, and in good seasons made as much money by his bees as nearly purchased oatmeal sufficient to serve his numerous family for the whole year. He purchased with a single season's wax a large quarto Bible (an expensive article in those days), "which served as a family book ever after," and his home was always well supplied with honey and mead. The old man worked at his loom till within a few days of his death in the eighty-sixth year of his age.

James, our author, was thus a born bee-master, and so great was his interest in bees that he, about the year 1765, travelled all the way to London to get a chance of conversing with the famous Wildman. The latter happening at the time to be in France Bonner had to return without seeing him, but he solaced himself by the possession of a rich haul of bee books picked up on London bookstalls. He tells us he bought every book on bees that he could find. After this, and under the impulse of fresh discoveries day by day, he became so absorbed in his studies and experiments that during the honey season he hardly took any sleep for whole weeks together. At last, in 1789, he published his first book, a "Treatise on the Management of Bees," which was well received. In succeeding years he made so many discoveries and improvements that he resolved to embody all he knew in the larger work by which he is better known, "A New Plan for Speedily Increasing the Number of Hives in Scotland," &c. This work was issued by subscription in 1795, and was directly under the patronage of the "lords and gentlemen" of the Highland Society, the then representative of the great Agricultural Society of the present day, at whose shows the bee tent is a regular attraction.

As affording a fair contrast between the best principles of bee-keeping in last century and those of the present day, I note a few of the more prominent of Bonner's ideas.

Honeydew.—He speaks of it as an exudation of the saccharine juices of plants, which in some cases it undoubtedly is, but seems to have no idea that the bulk of it is the excretion of aphides.

Crude and Perfect Honey.—He decidedly differs from Mr. Pettigrew in this matter, having satisfied himself that the nectar as gathered from the flowers is true honey, afterwards thickening only from the evaporation of its watery particles. I had an illustration only yesterday of one way in which bees get rid of the superfluous water in the sweets they gather. Over a large feeding trough where I was supplying my bees with sweetened water I could see in the sunlight that almost every bee that rose with its load ejected a spray of water. So rapidly did the water find its way from the honey sac to the excretory organs of the bee that the moment it rose it was enabled to get rid, I should suppose, of half the weight of its burden in the form of water. I have also noticed this in the case of bees returning from the fields during the honey season.

Pollen and Wax.—Although humouring the prevailing notion that the bees gathered wax and carried it home on their legs, by culling loads of pollen and loads of wax, Bonner argues very sensibly his opinion that wax is an exudation from the body of the bee, as milk from the cow, silk from the spider and silkworm, or wax from the human ear.

"Smotheration" by Brimstone.—This he utterly condemns as "a barbarous practice" to be ever deprecated. Who would have supposed that such a practice could have continued to the present day?—WILLIAM RAITT, *Blairgowrie*.

(To be continued.)

BRITISH BEE-KEEPERS' ASSOCIATION.—The next quarterly conversation will be held on Wednesday, April 12th, at 6 p.m., in the Board-room of the Royal Society for the Prevention of Cruelty to Animals, at 105, Jermyn Street, S.W., near Piccadilly Circus. Subject for discussion—"A Bee-keeper's Experiences in Cyprus and Syria," to be introduced by Mr. Thos. B. Blow, Welwyn, Herts. The quarterly meeting of representatives of county associations will take place on the same date, at the above-mentioned address, at 4 o'clock in the

afternoon. Entry forms, with rules and regulations, of the Economic Apiaries Competition, the entries for which close on May 1st, may now be obtained upon application to the Assistant Secretary, Mr. J. Huckle, King's Langley, Herts.

JUDICIAL DECISION IN WESTPHALIAN BEE LAWSUIT.

[Translated from the "Bienenzeitung," January, 1882. Communicated by Alfred Neighbour.]

THE Royal High Court of Justice here has recorded a judgment which is of great importance to bee-keepers. For more than fifteen years many bee-keepers of Rhineland and Westphalia had been in the habit of removing their bees to the fields of a farmer whose estate was adjoining a moor belonging to the brothers Von Raesfeld, which was visited by the bees in their search for honey. The brothers Von Raesfeld objected to this, and summoned the bee-keepers for trespass, but the case was dismissed. Thereupon they ordered some boxes to be exposed on the heath. The inside of these was covered with honey, and when a considerable number of bees had collected there the lids of the boxes were closed and the bees killed with brimstone by men specially engaged for the work. This conduct was the cause of an action by the bee-keepers against the Raesfelds, who were condemned by the Court to pay damages at the rate of M. 5.80 per hive, amounting in all to nearly M. 5000.*—THE EDITOR OF "THE BIENENZEITUNG."

THE INTERNATIONAL BEE-KEEPERS' CONGRESS AND EXHIBITION OF BEES AND THEIR PRODUCTS AT MILAN.

THE Congress took place in the splendidly decorated hall of the Technical Institute, No. 4, Piazza Cavour, on the 15th, 16th, and 17th September last, and was attended by about three hundred bee-keepers. The transactions at Milan did not commence until eight o'clock in the evening, continuing till after midnight, while the day-time was occupied in visiting the Grand National Exhibition and the objects of interest in the city, and in making excursions into the surrounding lovely country, and visiting a few of the largest apiaries. Mr. Edward Bertrand of Nyon commenced his very interesting discourse on "breeding queens" by saying that this was a particularly fit subject of discussion for the Congress of Milan, Italy being the country from which beautifully coloured queens are dispatched to all parts of the world. The rearing of queens for export, he continued, had become quite a branch of industry in Italy, and the Italian bee-masters ought to endeavour to maintain the good name of their breed of queens; it would further be necessary, he remarked, that those who procure queens from a foreign country should be fully convinced that the queens they receive from Italy really possess all the good qualities which will secure pure offspring. He had unfortunately experienced in the last few years that some queens which he had obtained from Italy died in the first year, while other queens turned out not to be very prolific, so that their colonies yielded but poor returns. He added that similar complaints had been made in Germany and America, and many bee-keepers, therefore, justly preferred those queens of the Italian race which had not been reared in Italy. Mr. Bertrand read a letter from Mr. Newman, the Editor of the American Bee Journal of Chicago, in which the latter requests the Italian bee-keepers to devote the greatest care to the rearing of queens.

Mr. Bertrand considers it very important, in order to rear serviceable queens, that—1, The parents, both queens and drones, should be selected. 2, There should be a large number of young bees in the hives used for breeding, because young bees are very apt to supply the larvae with plenty of food. 3, There should be a large population in a stock in which queens are to be reared. He objects to queen-breeding in small colonies, because it would produce queens of a weak constitution, which on this account would not be very fertile. While on this subject the speaker mentioned that in Germany the great masters of bee-keeping, Dr. Dzierzon, Gravenhorst, and Dathe, first allow the royal cells to be sealed in colonies with large populations, and afterwards proceed to make small colonies in which to allow the queens to hatch. 4, The queen should only be allowed to breed during the time when the bees are able to obtain a good supply of honey. He and other bee-masters of his acquaintance had frequently observed that queens reared early in spring or in autumn deposited but few eggs and often died after the first year. He did not believe that feeding was a remedy in the absence of the other conditions—viz., warm weather and a plentiful supply of pollen. 5, Those larvae which are chosen by the workers for rearing queens should not be more than a day old, in order that they may receive a plentiful supply of royal jelly as long as possible.

This discourse, which lasted over an hour, was followed by a debate of considerable length. I will only mention that Count Barbo expressed the opinion that Italian queens sent to foreign countries often do not give the desired results because of the frequently great difference in the climate and vegetation as compared with Italy.

* This shows there must have been nine hundred stocks of bees on one farm—A. N.

Professor Sartori observed that Italian queens formerly fetched a very good price in foreign countries, but their present market value was so low that breeders in Italy could no longer give the same careful attention to the rearing of queens they had formerly done. Dr. Dubini was of opinion that in order to obtain good queens in future it is only necessary to let the number of young bees be in the right proportion to the brood that has to be attended to, and that queens may, without disadvantage, be reared by small colonies if the latter are allowed to have but a small number of brood cells. Professor Sartori expressed himself in the same sense. Count Barbo proposed that a few queens partly reared in large colonies and partly by small communities should be sent to Mr. Bertrand by the Italian Central Association of Bee-keepers, and that he should be requested to note any differences as to vigour and fertility of the queens to be forwarded to him. Mr. Bertrand accepted this offer on condition that the queens to be sent to him should merely be numbered in order that he himself might not know which of them had been reared in large hives and which in small ones. Mr. Th. Newman of Chicago had sent a paper on the best races of bees, which was read at the meeting. He declares the Italian to be the best bees, while he considers the Cyprian bees have great inclination to sting. The reading of this paper was followed by a discussion, during which Mr. F. Lancia de Broto of Palermo mentioned that the Sicilian bees, being a cross between the Ligurian and Egyptian races, deserve particular notice on account of their many good qualities.—DR. FRIEDRICH KUHL.

(To be continued.)

LECTURES ON DAIRY AND BEE MANAGEMENT.—The lectures arranged by the Minor Food Products Association will be recommenced (by kind permission) in the Council-room of the Royal Horticultural Society at South Kensington, on Wednesday, April 12th, at noon, when Professor Sheldon will commence his course upon Dairy Management. On the afternoon of the same day, at three o'clock, Mr. F. Cheshire will give an introductory address on Bee Culture, but his general course of lectures on Bee Management will not be commenced until Monday, April 17th, at three o'clock in the afternoon.

TRADE CATALOGUES RECEIVED.

J. Backhouse & Son, York.—*List of Alpine and Herbaceous Plants.*
Charles Turner, Slough.—*General Spring Catalogue.*
P. J. Kane, Kells, Co. Meath, Ireland.—*List of Flower Seeds.*
Ransomes, Head, & Jefferies, Ipswich.—*List of Lawn Mowers.*
George Neighbour & Sons, 127, High Holborn, and 149, Regent Street.—*Catalogue of Improved Bee Hives (Illustrated).*



*** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Marechal Niel Roses (*James Wyatt*).—The blooms are very rich in colour, medium-sized, of good form, and highly creditable to the cultivator.

Labels (*E. B.*).—You are perfectly at liberty to send us a sample of your labels, which we will refer to in this column if you desire us to do so.

Climbers for a Greenhouse (*A. W.*).—For the warmer of the two houses the following would be suitable—*Begonia venusta*, *Habrothamnus fascicularis*, *H. aurantiacus*, *Euphorbia jacquiniæflora*, and *Heliotropes*. For the other you might have *Lapageria rosea* and *alba*, *Camellias*, *Hovea Celsi*, *Sollya heterophylla*, *Marechal Niel* and *Gloire de Dijon* Roses, and *Kennedy monophylla*.

The Bean Weevil (*J. E. R.*).—The holes in the "worm-eaten" Beans you have sent are made by the grub of a small beetle (*Bruchus granarius*), and when it has passed through the chrysalis state, and given birth to this beetle, the latter makes its escape into the open air through these passages. It is very destructive.

Paraffin Oil Insecticide (*F. J.*).—Doubtless others, as well as yourself, have been puzzled by the vagueness of the expression. For "pail" on page 239 substitute "four gallons," and you will find the mixture safe even for rather tender leaves, assuming the water is soft. It is always prudent, however, to try the mixture on a few plants at first, and note carefully its effect before using it on a large scale.

Necessity for Lime (*Idem*).—As lime is very easily removed from soil

through which water readily passes, you may take it for granted that your land wants lime, and would be benefited by an application, especially if there is a good deal of the remains of the manure you have applied present in the form of black mould. We, of course, presume that lime has not been recently applied. On very heavy land ten tons an acre are often applied with advantage; in light land it is found more profitable to give lighter dressings. At the rate of one ton per acre once in five or six years would be often enough where the rainfall is not more than an average, but the dressings may be more frequent where the rainfall is great.

Violas (*A Lady Subscriber*).—We have not grown the varieties you name, nor do we find them in the catalogues of the principal growers of these plants; we are consequently unable to answer your question, but if you apply to those who supplied you with either the plants or their names they ought to be able to give you the information you require.

Eucomis punctata (*F. J. C.*).—This plant is of very easy culture. It succeeds well in a light greenhouse or vinery. A compost of turfy loam, with a third of decayed manure, and sand or charcoal to keep the soil porous, is suitable. It flowers the most freely when not overpotted, and needs copious supplies of water during the period of active growth, especially if the pot is crowded with roots. It cannot have too much light, and as the summer advances it may be placed in the full sun in the open air to mature its growth. If planted rather deeply in light soil near to a wall having a south aspect it will survive the winter and flower yearly. It is, however, usually grown in pots, and is worthy of that mode of culture. The flowers, closely borne on a stout fleshy spike, are very fragrant.

Salvia Pitcheri (*Idem*).—This pretty *Salvia* will succeed under the same general treatment that is accorded to *Fuchsias*. In their early stages a shelf in a warm greenhouse or pit in which a genial atmosphere is maintained will be suitable until the plants are established and the weather mild, when they may be transferred to a cool frame. The plants may be topped, and the tops inserted as cuttings until July or August. If several of these rather late-struck plants are grown in a pot or pan a beautiful mass of bright blue flowers is produced in the autumn. A compost of two-thirds of turfy loam, with one-third of peat and leaf soil in equal parts and a liberal admixture of sand, will grow the plants well, due care being exercised in watering, drought on the one hand or an excess of water on the other being alike inimical, as causing the foliage to assume an unhealthy hue. Do not overpot.

Scale on Rose (*W. H. C.*).—Try the petroleum and softsoap mixture recommended to a correspondent on page 239 of our issue of the 23rd ult. We mean apply it to a portion of the plant at first, and if it answers the purpose of killing the insects without injuring the foliage then the entire plant can be syringed. The effects of petroleum on plants is not the same in all cases, the difference we presume being attributable to the quality of the water employed; but the application recommended is generally safe, and we think you will find it effectual.

Arrangement of Strawberry House (*J. S.*).—The side walls will need to be 5 feet 6 inches in height, calculating from the floor line, as you have a walk all round the house. Five feet will be required for the paths, which will leave 9 feet for staging, which will give ten shelves on the stage 9 inches wide, and a central one of 18 inches. The angle of the roof would be suitable at 30°, and the distance of the shelves from the glass should be as near 2 feet as possible. Two rows of 4-inch pipes along both sides of the house will be ample heating power. Provision should be made in the side walls for ventilation, and at the apex.

Heating Defective (*A Constant Reader*).—It is essential that the coil pipes have a slight incline, so as to cause the air to rise to the highest part, and escape there by a small tap, otherwise the circulation of the water would be impeded, if not altogether stopped. The pipe connecting the boiler with the coil in the hall should also have a slight incline; the circulation will then be good, and if you do not obtain the requisite heat it will indicate that the boiler is not sufficiently powerful.

Plants for North Border (*E. Hayward*).—The following we have found succeed—*Cyclamen hederifolium*, *Colchicum autumnale*, *C. speciosum*, *Helleborus niger* and var. *maximus*, *H. orientalis*, *H. colchicus*, *H. olympicus*, *Hepatica triloba* vars., *Hypericum calycinum*, *Narcissus Ajax*, *N. pseudo-Narcissus*, *N. minor*, *N. poeticus*, *Omphalodes verua*, *Ranunculus amplexicaulis*, *Rhododendron hirsutum* (a shrub), *Spiraea japonica*, *S. filipeudula plena*, *Trollius europæus*, *T. napellifolius*, *Pansies*, *Primroses*, *Violets* in variety, *Pæonia* vars., *Caltha palustris flore-pleno*, *Campanula macrantha*, *Arahis alba*, *Asperula odorata*, *Anemone apeniua*, *A. nemorosa plena*, and *A. coronaria*.

Hotbeds Injurious to Plants (*R. B.*).—If the manure is used fresh from the stable, that it has not been turned over frequently, and watered if needed to sweeten, it will not be safe even if mixed with leaves for the purpose you name, still the greater the quantity of leaves the less injurious will be the steam that rises from the bed. If you use half leaves and half manure, surfacing the bed with a foot of leaves entirely, there will probably be little danger. But you must remember that a frame must not be "kept constantly closed" for striking cuttings however sweet the manure may be. The lights usually need to be slightly propped up at the back half an inch or so according to circumstances to allow of the escape of excessive moisture. If a caudle will burn freely in a close frame the air will be quite safe for plants; if the light is suddenly extinguished the frame is not safe.

Ferns Unhealthy (*W. E.*).—We should not like to characterise any soil as "rubbish" that we have not seen; the peat may be good of its kind, but not suitable for the purpose for which you have used it. Who told you to pot the plants entirely in peat? We did not, still we are aware that Ferns will grow in some peat when used by some cultivators. You admit the plants grew well in the soil used last year; then why have made the change? From what you say we are of opinion that you have greatly overwatered the newly potted plants and rendered the peat sour. Turn them out of the pots, removing every particle of soil, even washing it from the roots, and repot in small pots, using a compost of one-half light turfy loam, the remainder equal parts of peat and leaf soil, adding small lumps of charcoal and sand freely. Apply water with great care, but maintain a moist atmosphere, and you may expect the plants to recover; if they do not it will be your own fault, as all will depend on your management.

Extirpating Ants (*Maurice Clarke*).—They are most difficult to destroy or drive from their haunts. They do not like guano sprinkled in their runs, nor paraffin. If half-picked bones are laid in the runs they will speedily be covered with the insects, and by plunging them in boiling water they are mercifully killed. A sponge partially saturated with treacle has the same effect in attracting them, and if a little arsenic is mixed with the treacle, those insects that

eat it will be poisoned. Dissolving half an ounce of camphor in a gallon of water, and carbolic acid diluted with twelve times its weight of water and sprinkled in their haunts, is said to drive them away. Cotton wool wrapped round the stems of Peach trees and kept moist with tar prevents the ants ascending. They sometimes eat off the stamens of the flowers, and also attack the ripe fruit, but otherwise do not do injury unless they make their nests in flower pots. They mostly abound where insects are present, and you will find it very advantageous to permit no aphides or other insects to congregate on the plants or trees in your houses. The paraffin and softsoap mixture described on page 239 was found not to injure the roots of Cauliflowers. An "ordinary pail" there mentioned will hold four gallons.

Apple Scions (F. C.).—It was too late, even a fortnight ago, to obtain scions, and it would be hopeless now attempting to procure them, as the growth is much too advanced. They should be cut from the trees in the autumn, or at any rate before the sap commences moving in spring, and inserted in moist soil to keep them fresh and retard their growth, so that the stocks are in advance of them when the grafting is done. The address of the firm you name remains the same, and your letter has probably been overlooked; your stamps would not be studiously retained by a firm so respectable. Write again. It is not the custom of nurserymen to sell scions; they prefer using them and selling the trees. You do not say how many you expected for a shilling. Of scarce varieties you would not obtain one for that amount; still the stamps, less postage, ought to have been returned.

Imported Tree Ferns (J. B.).—Prepare large pots of sizes proportionate to the stems of the Ferns you have received by thoroughly cleansing them, then one-third fill them with potsherds, the largest at the bottom, and cover these with some rough pieces of peat. Upon this place a few inches depth of a compost of two parts peat, one part light turfy loam, and a good proportion of sand, placing the Ferns in position upon this, and fill up firmly with the compost to within a couple of inches of the pot rim. Give sufficient water to render the soil thoroughly moist without being excessively wet, as the latter condition is almost certain to be fatal to the plants until they have commenced growth. Tie mats, canvas, or any similar material closely round the stems, and keep this well syringed, but carefully avoid wetting the crown of the plant. A warm, close, moist, and well-shaded position must be chosen, preferably in a tropical fernery, but a shaded corner in a stove or Orchid house will suit them. The principal points to be attended to are providing an equable temperature and moisture both around the stem and roots, and if there is any life in the plants they will be certain to start in a month or two.

"Preventing" Green Fly (J. P., Dublin).—It is undoubtedly wise to prevent the undue increase of this destructive insect. Its appearance you cannot prevent any more than you can avert the presence of the house fly. You may take it as a rule that anything that checks the free growth of plants or impairs their health—whether drought at the roots or in the atmosphere, or a too low or too high temperature—will render them especially liable to injury by aphides. Drought is their great foster-parent; water, their natural enemy. This is apparent by their large number in a dry season, and their comparative absence during a period of wet. The most skilled plant-growers syringe and fumigate to prevent the appearance of insects, instead of waiting for them and then commencing a war of extermination and, as too often is the case, losing. Follow the excellent plan indicated, and you will find it not only satisfactory but economical. If at any time an insect appears destroy it promptly; never wait for more. This is where so many persons err, and so many plants are rendered unsightly, and not a few worthless.

Planting Violets (Fragrans).—You may accept the indications of the plants which "look as if they want dividing and planting out" as a notification to you to proceed with the work. There is no better time for planting Violets than shortly after they have ceased flowering and are commencing to grow freely, providing the weather is mild and showery rather than bright and frosty. Violet beds are often spoiled by deferring the planting until summer, in which case there is not time for the roots to penetrate the soil to the necessary depth for obtaining the moisture that is requisite for maintaining the plants in good health. Dig the ground deeply, incorporating therewith a liberal amount of decayed vegetable matter if the ground is heavy, and fresh loam if it is light. We have found wood ashes of great value for Violets in both light and heavy soil. A hot sunny position, especially at the foot of a wall, is not favourable, as if the summer proves hot the foliage will almost inevitably be devoured by red spider. They flourish best in a breezy position; and the shelter of a hedge, if shelter is needed, is far better than that of a wall. We plant the strong-growing varieties a foot apart in rows 18 inches asunder, water them freely until established, and mulch between the rows with short manure if the weather proves hot and dry. This lessens the necessity for continuous waterings, and the plants thrive well.

Culture of Phænocoma prolifera (C. D.).—In reply to your queries we extract the following from previous volumes of the Journal which appear to have escaped your attention. "Phænocoma prolifera requires similar culture to the Apelexis, a compost of peat and silver sand with a small proportion of loam being needed, though the latter is frequently not used for Apelexis. The pots must be thoroughly well drained and the compost placed in firmly. Great care is needed in supplying water, as the slightest excess of moisture or insufficient supply will result in the failure of the plant. An ordinary greenhouse suits it very well, but it prefers a slightly higher temperature where it can be provided. It has a great tendency to become bare at the base of the stem, which can only be prevented by tying the shoots down and stopping judiciously to preserve a compact habit. Cuttings of the half-ripened wood inserted in sandy peat and covered with a bellglass strike readily in a close frame similar to that employed for ordinary hardwooded plants."

Culture of Sparmannia africana (Idem).—For the decoration of conservatories this is extremely useful, it being not only evergreen but perpetual-flowering. Fine bushes (and this we find much the best shape in which to grow it) can be had in 12-inch pots. The Sparmannia flowers but little in a young state unless extra sturdy growth is obtained. Cuttings taken from the ripened wood strike readily in the spring and can be grown into large plants. Avoid crowding; pinch back and pot on till the end of June or early in July. A good head being obtained, discontinue pinching and potting, and turn out into an open and sunny spot. The temperature of a greenhouse is the most suitable during May and June. Old plants when no longer wanted in bloom are ripened by gradually withholding water, are cut back to within a few eyes of the old wood, and placed in a gentle heat till they break; they are then shaken out of the old soil and repotted, employing about the same sized pot or tub as they were formerly in. This is rather severe work, as the ball is one mass of roots, but when placed in heat they soon recover from the effects of their rough treatment. The soil used is composed principally of turfy loam with an addition of a little peat, leaf soil, sand, and broken crocks. When re-established they are gradually hardened off, and in June are placed in a sunny position outdoors. Early in

September they are taken into their blooming quarters and commence flowering immediately. From that time an occasional dose of weak liquid manure is administered. They flower freely in a greenhouse temperature 38° to 48°, but 48° to 58° is far the best, the blooms being finer and of a purer white; the foliage has also a better colour for the extra heat.

Culture of Pentas carnea (Idem).—You will not find this plant difficult to grow successfully, provided the temperature of a stove or intermediate house can be secured. The compost should consist of light turfy loam, peat, and leaf soil in equal parts, with a plentiful admixture of sand. The pots must be thoroughly drained, as water should be freely supplied when the plants are growing. It is an old favourite in many gardens, owing to the flowers being produced in the dull season, though with judicious management the plants may be had in flower during the greater portion of the year.

Glass Structures (H. R. W.).—It is not possible for anyone to give you the precise information you require on the data supplied in a letter of a general character. You have, no doubt, endeavoured to make the case plain, but such a phrase as a "medium-sized household" is not more definite than a medium-sized ship or plant that we might thus describe to you, and which you have never seen. We gather from your letter that you wish to grow Vines, Peaches, Nectarines, Apricots, and Plums in the same house, then "early Cucumbers and Melons to follow." You cannot satisfactorily do this. You say you would like four Vines. This is definite. These you may grow fairly well in a house 15 feet long, but the quantity of fruit they will produce must depend greatly on the length of the rods; these, we think, should not be less than 15 feet long. This will indicate the length of the roof; or to state the case as plainly as possible, we should have a lean-to vinery facing the south 15 feet long inside measure, 12 feet wide, and 10 or 12 feet high at the back, according to the height of the wall. You also desire two Peaches, two Nectarines, two Apricots, and "perhaps a couple each of two sorts of Plums." Apricots do not usually succeed well in a house with Peaches. For producing the greatest quantity of fruit of the best quality from four trees, two Nectarines and two Peaches, we should have a house of the same size as the vinery, and plant two trees in the front, training them to a trellis arched over to the back, about 3½ feet from the wall and 4 feet from the ground next the path; light would then be admitted to the back wall, which you could cover with the other two trees. You would now have a range 30 feet long. Now comes the provision for Melons and Cucumbers, also "conveniences for keeping a small conservatory going." As you afford us no idea whatever of the size of this conservatory, we shall almost certainly suggest either too much or too little glass, and you must accept our reply as affording a general idea of a proposed arrangement. At the end of the vinery we should have a smaller house, say 9 feet high and wide, and 20 feet long, in two divisions. This would enable you to grow Cucumbers and Melons, and would be valuable for propagating and raising such stove plants as Gardenias, Poinsettias, and many others, also for forcing plants for the conservatory. A similar structure at the end of the Peach house, kept at a greenhouse temperature, would be of service for preparing decorative plants for the conservatory, and would be otherwise serviceable and interesting. As you have a wall we recommend lean-to structures, as less costly to build than span-roofs. There are plenty of boilers of both the saddle and tubular pattern that do not need an "engineer as well as gardener," and as you say you have an "excellent" gardener, he may be safely trusted to choose a boiler. We pass the Plums, as you do not appear to have decided whether you will grow them or not under glass.

The Asparagus Beetle (W. M.).—Your plants are attacked with this destructive insect (*Crioceris Asparagi*), of which we submit a figure. We should dust with lime, and at the same time sprinkle salt on the surface of the beds, making it quite white. We should further, when the plants are in full growth in the summer, like you to try the experiment of syringing with paraffin in different degrees of solution, and to inform us of the result. We think you will thus be able to kill the grubs without injuring the Asparagus.

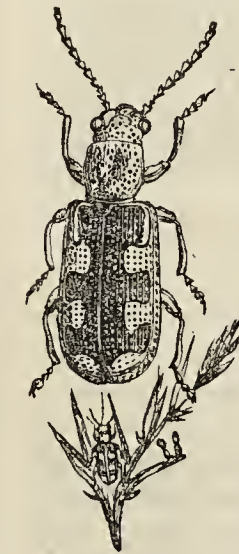


Fig. 57.

apply lime liberally and fork it in. On the application of lime see the answer to "F. J." Should the paraffin mixture prove a preventive kindly let us know.

Names of Plants (C. E. M.).—Owing to the specimens sent having remained in the post during Sunday, they were much shrivelled. Further, the box containing them was so fragile that it was completely smashed. The specimens themselves, too, were mostly insufficient, being unaccompanied by flowers, without which it is useless to expect us to name fragments of leaves. However, we recognise the following—2, *Corydalis lutea*, and 4, *Muscari botryoides*. (Tobey).—*Escallonia macrantha*. (J. M.).—1, *Acalypha Macafeana*; 2, *Ophiopogon intermedium variegatum*. (J. G.).—1, *Akebia quinata*; 2, *Begonia glaucescens*.

Drone-breeding Queen (J. G., Devon).—Having seen a fine lot of brood some weeks since in your hive, you now find only scattered cells sealed, and these capped very high; queen cells appear to have been built and a queen is present. You desire information as to what is wrong. Two solutions are possible. Either your queen is worn out and has become a drone-breeder or, as we think more likely, the queen was killed or lost at some time before the examination when the abundant brood was seen. The bees finding themselves motherless attempted to requeen the hive by building queen cells, but as no

drones existed to meet at her flights the product of their efforts, she after about thirty days commenced to lay unimpregnated eggs. These, as is well known, produce drones. Worker cells have somewhat less than two-thirds of the cubical capacity of drone cells, and as the drone-producing eggs have been deposited in the former an inordinate elongation is made necessary, hence the very high capping to which you draw attention. A third but very improbable solution may be suggested. It is the temporary presence of a fertile worker during requeening. This is a phenomenon which we have known to occur. You ask, Is it possible for bees to rear drones from worker eggs in worker cells? All eggs are alike save in one particular wherever laid. They are either impregnated or unimpregnated. The former may be converted into workers or queens, the latter into drones only, the size of the cell not exerting any practical influence. The eggs of an unmated queen can therefore only yield drones. See "The Physiology of the Honey Bee" in our issue, August 18th last. If you are anxious to keep the stock give brood as you suggest, but it will be probably more profitable to unite it to another, killing the queen first of course.—F. C.

COVENT GARDEN MARKET.—APRIL 5.

TRADE has been quiet during the week, and prices remain much the same.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 0 to 6 0	Lemons.....	12 case	12 0 to 16 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushe	16 0 0 0	Oranges.....	100	4 0 0 0
Currents, Black..	1 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red.....	1 sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	" dessert.....	dozen	0 0 0 0
Filberts.....	1 lb.	0 0 0 0	Pine Apples.....	1 lb.	1 6 2 0
Cobs.....	100 lb.	45 0 60 0	Strawberries....	per lb.	6 0 10 0
Gooseberries....	1 sieve	0 0 0 0	Walnuts.....	bushe	7 0 8 0
Grapes.....	1 lb.	6 0 12 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	9 0 19 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	100	2 0 2 6	Onions.....	bushe	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	1 sieve	1 3 1 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushe	2 6 3 6
Carrots.....	bunch	0 4 0 6	Kidney.....	bushe	3 0 3 0
Capsicums.....	100	1 6 2 0	Radishes.....	doz. bunches	1 0 0 6
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	0 9 1 0	Seakale.....	basket	1 0 1 6
Endive.....	dozen	1 0 2 0	Shallots.....	1 lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushe	3 0 0 0
Garlic.....	1 lb.	0 6 0 0	Tomatoes.....	1 lb.	1 0 2 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 2 0 4	Vegetable Marrow..	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

INJURIOUS INSECTS.

THE science of entomology is not only interesting to an inquiring mind, but also a knowledge of it is very useful to the farmer. To be forewarned is to be forearmed, and the basis of all practical attempts to destroy or evade the injury often done by insects is to understand their habits, and having ascertained these points it will be the farmer's business to manage the cropping of land in order to avoid the attacks of injurious insects, or when possible to destroy them on the first opportunity.

Let us first take a review of the insect enemies which are ever vigilant and waiting at the appointed time to attack the crops. We will begin with the root crops, such as Mangolds, Carrots, Cabbages, Swedes, and Turnips; in fact, every other kind of vegetable included under the head of the Brassicas. To show that our root crops are endangered at every stage of their growth we will take the enemies as they make their appearance. On the first appearance of the leaves of the young plants the Turnip fly commences its attacks, but no sooner are the plants (if they escape) large enough for hoeing and singling than the wireworms commence operations under ground by eating the roots. Simultaneously in certain seasons the small white slugs and snails commence eating the young leaves. After hoeing the next enemy

they have to encounter is the brown grub, which continues to eat the roots underground up to the time of half growth. Simultaneously with this underground enemy in certain seasons we have the black caterpillar, the Mangold fly, Cabbage fly, &c., eating the leaves, sometimes with a total destruction of the crop, and always with more or less injury. Again, in certain dry seasons when the plants should be full grown they are beset with myriads of small black aphides something like those which often injure the Bean crops. From this last cause we have known promising crops totally destroyed or so much poisoned by the insects that sheep or cattle could not be fed upon them, but as a last resort they may be all ploughed in together, and thus turned to account as manure.

Having now stated somewhat in detail the time or times when the various insects appear, we propose to enlarge upon the subject by taking account of and describing the habits of the insects and how to destroy them or avoid their depredations. In doing this we will take first the Turnip fly, flea, or beetle. There are several described by Mr. John Curtis in the "Journal of the Royal Agricultural Society of England," vol. ii., page 193. They are also described in the reports issued by Miss E. A. Ormerod for 1879, 1880, and 1881. These reports contain a large amount of information upon the insect tribes generally from data supplied by gentlemen connected with agricultural pursuits, and are derived from actual observation and experience. The same may be said of the excellent essays by Mr. John Curtis, which have appeared in the "Royal Agricultural Society's Journal" from vol. ii. to vol. x. We, however, propose to detail our practical experience derived from a close acquaintance with agricultural products and their enemies extending over a period of fifty-five years.

The Turnip fly or beetle, as we have always known it, consists principally of two kinds (although we admit there are many); these have a mottled or plain black case which covers the wings, by the assistance of which they fly or hop from plant to plant. The insect with the white mark on a black ground on the case of the wing is the most common and the most destructive. This is an extremely small insect not much larger than the head of a common pin, but have been wonderfully destructive at certain dry hot summers during the whole of our experience, but never more so than in 1881. We have known the seed of Swedes sown first, then Turnips; but in each case the plants were nearly all destroyed. To evade or avoid injury from them, we have found that autumn tillage well carried out is the safest system, as when the land is made clean by burning the weeds the larvæ are often destroyed, especially if there is much couch grass, &c., to be burned; and to do this the land must be worked into a very fine surface, then in sunny weather many of the beetles are brought into existence and die for want of food. The same process, or at least the continuation of tillage in the early spring, say during March, April, and May, with light ploughing and scarifying, is equally beneficial. We will suppose the beetles to be hatched, for in the case of Charlock or wild Mustard plants appearing, they are, when the weather is sunny, sure to be attacked by the Turnip fly with the mottled wing. In case the tillage is continued so as to insure a fine yet bare surface during these three months, our theory is that the insects die for want of plant food, and after such management we always feel pretty sure that the Swedes Turnips, or Cabbage sown in the month of June will be almost entirely free from any injury by this beetle. The exceptions, however, are when the autumn tillage cannot be effected owing to rainy weather and the absence of sunshine; then the beetle will not make its appearance or be destroyed until the time, or near the time, of seeding for the root crop, and this was exactly the case in the spring of 1881, in which so much injury was done by this insect throughout the kingdom, chiefly in consequence of unfavourable weather, or the neglect of cultivating in the autumn of 1880.

Another point must now be considered—how to avoid the mischief done by the fly or beetle. First, the cultivation should be so managed in the spring by scarifying that moisture shall be retained sufficient for the seed to germinate with regularity, but this is in some seasons almost impossible if the seed and manure are applied by the ordinary drill, for neither are buried deep enough to benefit (if the weather continues dry) from the moisture contained in the subsoil just below the depth of ploughing. The disadvantage is, even if the seed germinates, the growth will not be sufficiently vigorous to drive the plants forward quickly enough to enable them to grow out of the way of the fly. To avoid this difficulty, which certainly exists even when a full dressing of manure and a large quantity of seed has been drilled per acre, we advise the use of the press drill, which is a drill and presser combined. By the use of this the seed and manure fall into the grooves made by the rings of the presser, thus giving

the seeds the full advantage of moisture to be derived from the subsoil. Again, as soon as the first plant forms roots they at once feel the firm moist subsoil which so greatly contributes to their immediate and early growth. We trust the home farmer will see the points of this system, which aims at encouraging the earliest possible growth in order to force the young plants into the rough leaf, after which stage of growth they are practically out of harm's way by the fly. At this stage, however, the insect enemies, which are ever present more or less, make their appearance. If the weather should be moist and warm the small white slugs and snails feed upon the tender leaves, but principally at night or evening and early morning, returning to their hiding places, either small holes in the surface or under clods, where they take refuge as soon as the sun rises. In such cases the whole of the young plants have been often destroyed. To meet the depredations of these insects, which are extremely destructive, particularly when the seeds of root crops are deposited, at once ploughing after the catch crops, such as Rye, Vetches, or the hay crop. The only successful attempt made by us has been to strew over the land every evening Cabbage or any other vegetable leaves, and pick them up the next morning and carry away the slugs and snails, which will most assuredly have collected under them in large numbers.

The application of lime when the dew is on the plants is sometimes resorted to, and is always worth doing even if it does not quite destroy the slugs, because it is worth its value as manure on most soils. Simultaneously with the slugs eating the leaves, we find (in dry weather especially) the wireworms at work underground eating the roots of the infant plants. These are desperate enemies, being the larvæ of various kinds of flies, some, however, being much more persevering in their attacks than others, but all more or less to be taken and destroyed by very much the same means. First of all by taking the tubers of Potatoes and cutting them into slices about $1\frac{1}{2}$ inch thick and strew them over the ground, in which case when the wireworms, which only travel at night-time, find both food and shelter afforded by these slices of Potatoes, Mangolds, or any other similar roots in store at the time of year; they not only eat the roots, but lie under them for shelter and security during the daytime, when we always employ women to examine the root slices and picking off the wireworms into a small hand-vessel, and carry them away to be destroyed, in this way we have saved many acres of valuable roots. Since, however, we entered upon a course of Potato cultivation in 1842 we have never suffered from these insects either in corn or roots, for they eat their way into the tubers and are carried away.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still busily employed in ploughing-in the Potato sets, except on some of the sandy or gravelly land where it has been completed for some little time, because upon such early or forward land it is not often that the late-cropping sorts, like the Champion, &c., are planted. Barley is well forward this year, there having been but little hindrance in seeding where the land had been previously prepared, still much is frequently sown after Swedish or late-sown Turnips, being fed off by sheep. Our rule, however, is to finish sowing Barley before the 14th of April, and any Lent corn to be sown after that date should be either Early White Victoria Oats or otherwise drege—that is, mixed Oats and Barley, for home consumption, and we sow three bushels of the former and one bushel of the latter per acre. The stubble Turnips sown after the harvest last year are now yielding a good quantity of sheep food, for although the seed stems are run up to flower there is a quantity of lamb food, the lambs being very fond of the flowers, and we have always found they do well when eating them. The bulbs are not large, but the largest of them, after the ewes have finished eating the greens, we prepare for the cutter and mix Mangolds with them, both being powdered with cake or meal. In this way the greater portion of the late-sown Turnips are disposed of with benefit to the land and the sheep also, particularly in seasons when spring food is scarce. We, however, only grow and use Turnips in this way late in the spring upon land quite clean, and intended to be sown with Mangold by one ploughing only, and in this way any seed stems of the Turnips left are ploughed in with either yard manure, or the land drilled with portable manures immediately after the ploughing and working whilst the land is moist and kind. In this way we have grown fine crops of Mangold after deriving benefit from feeding sheep on the Turnips.

Clover seed should now be sown, and where Wheat has been grown after Potatoes or Barley the red Clover is sure to take well, but especially where it has been alternated, taking red Clover first, the next course Dutch White Clover, and the third course Alsike, sometimes mixed with Saintfoin. In this way the red Clover is sown only once in twelve years. With either of these crops we never think of sowing any Rye Grass, especially of Italian Rye Grass, for it completely overpowers the Clovers and makes a bad lea for Wheat,

whereas the Clovers when sown alone make first-class hay. Sometimes they have been found difficult to get up for hay without damage by rain, as they take so much making, but we avoid this now by using Mr. Gibb's drying machine, and also build the ricks so as to be enabled to use the heat-exhausting fan, also of Mr. Gibb's make. In this way in any season the hay may be secured in good condition, for all the experiments and trials of Gibb's machinery carried out during the wretched season of 1879 proved most decisively that although the weather may be adverse the hay need not be spoiled, and on many farms the quantity of hay saved by Gibb's method would pay for the machinery in one season by the extra value of the hay saved. In some cases the hay presser has been used with good effect, it being brought out in solid squares of any size, and being packed away when only partially made by the sun, has been found to dry off in excellent condition in the store sheds, which are now very commonly used for the stowage of hay and corn by saving the corn and hay in good condition without the cost and risk of thatching and the use of sail-cloth covers of a perishable material, whilst the sheds are covered with iron or other durable materials.

Hand Labour.—Some men will now be employed if the cutting of oak timbers is going on for estate building repairs, the stripping of the bark and the setting it up to dry gives employment to both men and women. Draining, too, should now be done, and the fallowing of the land, preparation for roots, &c., be gone on with; the women will also be required in weeding, stone-picking, &c., in parkland and pastures, but in the fields they are required only for lifting and cutting Docks, Thistles, &c., because the other weeds in the corn will be cut off or pulled up by Koldmoo's horse-power weeding machine. This is a capital implement in fields subject to Charlock.

Live Stock.—This has been one of the most remarkable seasons on record for the sheep stock, as foot rot and epidemic lameness has in most districts disappeared or greatly diminished. The foot-and-mouth disease, too, has been greatly reduced, except in a few districts, especially in Lancashire. The foot rot and epidemic lameness yield to the usual remedies when they are applied at the proper time, and we view this matter as a question of labour chiefly, because if every sheep is attended to the second day after showing lameness, a cure can be effected without injury to the general health and condition of the animals, and in those cases where large flocks are kept a man or men should immediately be employed daily, doing little else but attend to the sheep. The cost will be comparatively small compared with the attendance of the shepherd only, who has his other duties to perform, and it is often by the inability or impossibility of the shepherd, without large assistance, to contend with a flock under the influence of a serious outbreak of lameness to attend to each animal at the right time, and the application of judicious remedies which is the eventual cause of such heavy loss and uncontrollable continuation of foot rot. The dairy cows have lately been dropping their calves, and will continue to do so for a short time longer, especially in those districts where cheese-making prevails. Their calves are frequently sold for suckling into other districts for the making of veal. When, however, a few are reared at home for the maintenance of numbers in the herd, the practice is to use skim milk whey, assisted also before they can eat by hay tea, or which is better and less trouble, by Bowick & Co.'s now celebrated "Lactine" which rears calves in fine condition.

POULTRY AND PIGEONS

THE FOWLS OF THE MEDITERRANEAN.

(Continued from page 272.)

1, WE will take the fowls of the Italian peninsula. From the Alps to Calabria we have observed that nearly all the Italian fowls are akin to what we call Leghorns. Of course, the colours are much intermixed, and in the same yard are seen white and brown, and cuckoo and mottled birds, yet all have the Leghorn figure and comb. Both the varieties now shown in England—viz., the white and the brown—are extremely beautiful. The former when in good trim and condition are peculiarly attractive in their pure whiteness; the latter are exquisitely rich in the deep chestnut and brown of their hues. We have recommended them as layers to several breeders, not for fancy, but for the supply of eggs to their house, and all have been satisfied. Here comes in another proof of our theory against selecting arbitrary fancy points for this race. Leghorns are a breed with bright yellow legs, and had as well yellowish earlobes. Certainly these were not pretty, of a somewhat sickly tint, but there is doubtless some connection between them and the yellow legs. The fanciers soon decreed that these were not to be, but that Leghorns should have pure white lobes, and in time they had them. What is the result? The judges say that the breed gets more and more puny. The last exhibition season saw a great decadence in it, and now, perhaps too late, some of the best authorities upon it begin to cry out that this arbitrary fancy standard as to earlobes must at once be discarded, or that the breed will be ruined. Whether exhibitors will

discard it we know not, but we strongly advise those breeders who require a profitable and handsome laying breed to select fine and robust Leghorns, irrespective of the tint of their ears. We have seen in Italy many good-looking Cuckoo birds, and have lately seen some such shown in England. They are pretty, the yellow leg contrasting well with the blue plumage; and Cuckoo fowls are usually hardy, so we fancy an importation of them might pay.

2, The races of the Spanish peninsula. First and foremost among these must, of course, stand the White-faced breed, not for its merits nor as a useful fowl, but for its old celebrity. There was, we believe, a time when from an exhibitor's point of view size was much more thought of than it now is in the breed. Spanish have long been famous about Bristol, and we believe that in one yard thereabouts long pre-eminent there were grand and most robust birds. Such doubtless made the reputation of Spanish hens as layers. Too much stress has long been laid on the abnormal development of the white face; hence, doubtless, the degeneracy of the breed, or at least of many strains of it, in laying powers. Pure white White-faced Spanish have been. They seem to have been the albinos of their kind, and not a separate family, and therefore should hardly be sought, however pretty, as profitable poultry. Minorcas (or, as some people call them, Red-faced Spanish) are marvellous egg-producers. They show by far the greatest development of comb of all this large-combed race, and certainly surpass all others as layers. A handsome pen of glossy black Minorcas in good condition is a pretty sight. The white variety, too, though not so common, seems a distinct and equally hardy race. With these the white earlobe is natural, and very pretty it looks against their bright red faces. Of all the bright or delicate colours of fowls there is none which we have found so much to catch the eye and take the fancy of non-fanciers as the soft dun and rich steel-blues of Andalusians. Their tints cannot be described; they must be seen to be admired. A class of Andalusians at a large poultry show generally has a crowd about it. They, too, are very good layers, and we only hope that the efforts of fanciers to produce hyper-exactness of lacing on the breast or other fancy points will not cause them to overlook size and vigour. It is a useful and beautiful breed. It would be a sad pity for the sake of one additional point of beauty to risk degeneracy.

One more variety there is, very little known, which lovers of the race might care to cultivate. We mean the Ancona breed. Of course, if correctly named it should be classed with Italian fowls, but those we have seen had so much more the look of the Spanish sub-varieties that we should fancy its nomenclature might be incorrect. However that may be, Anconas are speckled black and white, and in form resemble small Minorcas. It is a long while since we saw any in England. Some were shown in 1879 at the Jersey show, and are probably still to be found in the island or in our south-western counties.

Such are the varieties of a race of fowls which we believe to be almost unrivalled as layers of large eggs. Hamburgs may surpass them in number, but do not approach them in size of eggs. All of them bear moderate confinement well, and if a fair proportion of early pullets are annually kept to lay through the autumn and early winter will, with tolerable management, form profitable egg-producers. As, however, we have said, where profit is the desideratum, though a pure and distinctive breed may be selected, other points must be looked to than mere fancy ones in the selection of stock. Here and there the best cupwinner may also be the best layer, but, as a rule, the race will not stand interbreeding to bring out particular points.—C.

INCUBATORS.

I SHALL be glad to know how any of your readers who have a "henwife" incubator have succeeded with it or *vice versa*. A register also of heats in drawers, &c., and times of attention during the twenty-four hours, will greatly oblige.—C. T. H.

[The "henwife" incubator, having a somewhat small watertank, requires to be worked in a room with a fairly even temperature. We believe it has in several cases given very good results. It requires about one gallon of water three times daily. We use one as a drying box, and find it keeps up its heat very well for that purpose with one gallon and a half night and morning.]

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held on Friday, March 31st, at the Charing Cross Hotel. There were present the Hon. and Rev. F. G. Dutton (in the chair), Messrs. T. W. Anns, R. A. Boissier, G. B. C. Breeze, A. Comyns, S. Lucas, and C. F. Montresor.

NEW MEMBER.—The following new member was elected—John E. Mapplebeck, F.L.S., Hartfield, Moseley Wake Green, Birmingham.

DISQUALIFICATION AT DOVE VALLEY SHOW.—A case which had on several previous occasions been under the consideration of the Committee, and had been postponed for the purpose of obtaining further evidence, was again considered. The Secretary of the Dove Valley Show, which was held under Poultry Club rules, reported on January 7th that at the show held on December 28th, 1881, a Duck-wing Game Bantam cockerel, shown by Mr. W. Knapton of Rotherham, had been disqualified by the Judge (Mr. E. Hutton) for being overtrimmed, two of the feathers on each side of the bird's tail having been removed. Mr. Knapton upon being asked for an explanation alleged that an accident had happened to the bird on the railway platform as he was about sending it off, when he had taken it from its hamper to show to a friend, and some feathers were accidentally pulled from the tail. This account was corroborated by the person to whom the bird was alleged to have been shown. On the other hand, there was the testimony of the Judge, the Secretary, and four other witnesses that the bird's tail had the appearance of having had two of the quill feathers on each side cut off close to the root in such a way that the skin would probably grow over them. Mr. Knapton had purchased the bird in the previous July, and it had moulted in his possession. It was resolved—

"That Mr. W. Knapton be disqualified for one year from March 31st, 1882, from exhibiting at shows held under Poultry Club rules."

THE DISQUALIFICATION AT GOSFORTH SHOW.—This case, the particulars of which have already appeared in the poultry papers, was under consideration, but the decision of it was postponed until a special meeting of the Committee to be held on the 17th inst.

HONORARY LIFE MEMBERS.—The position and privileges of honorary life members were, at the instance of the Secretary, discussed, and defined to be the same in all respects as those of full members.

NEXT MEETING.—The next meeting of the Committee will be held on the 17th inst. at the Charing Cross Hotel at 2 P.M.—ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, London, W.C. April 4th, 1882.

OUR LETTER BOX.

Pullets Losing their Feathers (F. G.).—We do not quite understand your query. If it be on their backs that your pullets are losing their feathers, the only remedy is to separate them from the male bird, or allow him a greater number of hens. If it be on the under parts we can only suggest vermin as the cause. If these be present rub in flowers of sulphur and sprinkle paraffin in the nests, &c.

Fowl House (J. B.).—Whitewash the entire inside of your fowl house. It will keep it cool instead of adding to the heat as suggested. You must give more ventilation in the summer than just now. If you add a pound of pitch to each gallon of tar and apply hot, throwing fine sand or lime over the roof afterwards, you will find it dry quickly and make a good roof.

Hen Laying Yolkless Eggs (J. B.).—Your hen is suffering from some disorder of the oviduct. Put her on a non-stimulating diet, and give a dose of oil.

Manure for Carrots (W. J. C.).—In all soils congenial to the growth of Carrots, where a liberal course of cultivation has been pursued for some years previously, we do not find the Carrot crop requires any manure, a large and heavy produce being almost certain; yet we have found it advantageous to drill with the seed about 2 cwt. of bone superphosphate per acre with a few ashes for the purpose of forwarding the young plants. We cannot advise the use of farmyard dung for this crop, but in the case of land being out of cultivation, or not well suited for the crop, we would apply some artificial manure. We think that Peruvian guano is best, and applied broadcast previous to the last ploughing, as we have found when harrowed-in on the surface it encourages the growth of weeds, and causes the Carrot plant to throw out an unusual number of small surface roots, which are detrimental to its growth.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. March. April.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	26	29.322	41.0	38.4	N.W.	44.2	50.1	32.8	104.0	32.9	
Mon.	27	30.130	45.0	41.6	W.	43.8	53.3	35.5	101.4	31.3	
Tues.	28	30.243	48.4	45.6	W.	43.6	55.3	38.2	90.6	31.9	
Wed.	29	30.003	52.4	50.3	W.	44.8	58.7	48.3	82.5	45.9	
Thurs.	30	30.670	48.3	44.3	W.	45.6	56.4	42.0	108.5	38.6	
Friday	31	29.547	45.9	42.2	N.W.	45.7	55.6	38.2	104.8	32.3	
Satur.	1	29.758	51.3	46.2	S.E.	45.5	60.8	38.8	110.0	35.3	
		29.954	47.5	44.1		44.7	55.7	39.1	100.2	35.5	
										0.090	

REMARKS.

26th.—Heavy squall with rain and snow 6.5 to 6.15 A.M.; fine after 9 A.M., with cold squally wind.
 27th.—Cold and overcast, with fine bright intervals; still windy.
 28th.—Cloudy; bright sunshine at intervals.
 29th.—Warmer; cloudy; slight rain at times.
 30th.—Fine bright sunshine and cold wind; calm with rain in evening.
 31st.—Overcast at times, but generally fine and bright.
 1st.—Fine and bright, with cold wind.
 Temperature higher than last week, the nights being warmer. This is the seventh consecutive week of which the temperature has been above the average.
 —G. J. SYMONS.



13th	TH	Quekett Club at 8 P.M.
14th	F	
15th	S	
16th	SUN	1ST SUNDAY AFTER EASTER.
17th	M	Birmingham Spring Show. Two days.
18th	TU	
19th	W	

HARDY FLOWERING PLANTS.

AT this season of the year many hardy plants will receive the attention of cultivators, hence the following remarks will probably be acceptable to many readers. It is evident to all who take a real interest in horticulture, and who visit gardens in various parts of the country, that a great change has taken place within recent years. Only a few years ago nearly every hardy plant was removed from shrubbery and other borders to make room for summer ribbon borders, or scroll bedding of miniature plants in or out of bloom. The majority I might fairly say followed the fashion, and those who advocated hardy flowering plants were regarded behind the times. Now we may claim credit for making rapid strides and utilising hardy flowers to produce much more pleasing and striking effect than ever was the case before. I think that this change is due to the proprietors of gardens as much as to gardeners themselves. I could name ladies who through all these changing garden fashions have clung to what they call "old-fashioned flowers," and to-day would prefer a vase of Sweet Peas and Mignonette, a bunch of Violets, Alpine Auriculas, or any of these old inhabitants of our gardens, to the beautiful and delicate blooms of Orchids. Some may think it is because those to whom I allude have not convenience for producing such choice flowers. To be understood on this point I must say they already possess as good and choice a collection of exotic and greenhouse flowering plants as can be found in the majority of gardening establishments. When such is the case the love for simple flowers is real.

In nearly all the gardens I have visited during the past four or five years I have found selections of hardy flowers eagerly sought after and gladly accorded a place; but during the last two years the advance in this respect is even more marked. The interest at the present time appears centred in selecting those only that prove of real use in regard to effect and beauty. This is a step in the right direction, and the course that will in the end prove the most satisfactory in private establishments. It is usually preferable in gardens to grow a number of a few useful plants than a few specimens each of a great number of species or varieties, except for scientific purposes. I have not a word to urge against a large collection of hardy plants, even if they comprise, from a gardener's point of view, useless kinds, but I think a botanic garden is the proper position for them.

While I admire many bulbous and other hardy plants, I should be sorry to see the present style of flower gardening neglected and the beds filled with herbaceous plants. The

flower garden proper is usually in a conspicuous position, and can be rendered as attractive as could be desired during spring and summer by a judicious system of planting. The beds during autumn can be filled with such hardy spring-flowering plants that flower about the same time, including Daisies, Violas, Aubrietias, Silenes, Myosotis, and others. When these are removed the summer bedders can take their place until autumn frosts arrive. Those who have forcibly urged the use of hardy plants in place of the summer bedders appear to have created a wrong impression in the minds of many, and left them almost puzzled how to arrange a geometrical garden to look neat and as attractive through the summer season as with the usual summer occupants. Like many others I should be at a loss to know what plants to employ and how to arrange them to the best advantage. Perhaps those familiar with this system of bedding hardy plants—say to flower from May to the end of the season—will record their experience. While I regard the flower garden proper no place for herbaceous plants, I do not think they are displayed to the best advantage in any one border of whatever length and breadth it may be. Such a border can, I know, be made gay; but however carefully it is tended there must be constantly a number of plants looking rather unattractive after flowering.

I have eagerly noted any good arrangement when visiting gardens during the past few years, and must confess I have been more disappointed than pleased. In some gardens ample provision has been made for growing hardy flowers, and the grounds not rendered either attractive or picturesque. For instance, suppose a garden having on all sides and ends raised banks planted with evergreens, and in some cases with deciduous trees in the background, at one end being a small ornamental gate with a path round, the visitor returning through the gate by which he entered. That there are such toy gardens in beautiful portions of pleasure grounds I have frequently seen, and for either hardy or other flowering plants they cannot be too strongly condemned.

All gardens would be improved considerably by the introduction of hardy plants, which would not only prove useful but beautiful if only a limited selection were employed and judiciously arranged. The pleasure grounds I regard the proper place for hardy plants, except those that are only at home on the rockery or become naturalised under the shade of trees in surrounding plantations or woods. They could be planted at the front of shrubbery borders and amongst the shrubs if those are not crowded. By the introduction of these plants amongst beds of Rhododendrons or other dwarf evergreens a considerable saving would be effected in shrubs. This is by no means the only advantage, for the shrubs themselves would develop into handsome specimens. The system of planting to be found in many gardens would not allow of hardy plants being utilised amongst them, and in consequence after a few years a good specimen cannot be seen amongst the shrubs.

No better position could be found for many useful hardy plants than amongst evergreens planted sufficiently far apart. For example, in a bed of Rhododendrons and Ghent or mollis Azaleas, if Lilliums and Pyrethrums were planted, what in their season could look more beautiful, or in what other position could they be shown to greater advantage? The use of Pyrethrums for cutting is beyond doubt, and those who have quantities of flowers to cut and pack during the London season

should make room for a good number of these useful plants. In other beds Hollyhocks, Phloxes early and late, Tritonias, Spiræas, Veronicas, Delphiniums, Carnations, Pinks, Iris, Anemones, Pæonias, Pentstemons, and a host of others could be planted, including the Sunflower, which need not be despised in such positions. The arrangements for hardy flowers I would not entirely confine to the shrubbery. Beds could be cut out in the turf here and there in suitable places, so that the sameness existing in many gardens would be broken by the introduction of something choice and interesting in every nook. There can be no doubt that if hardy plants were employed more liberally in the way described they would not only be more appreciated, but add greater interest to the grounds, proving as useful and more beautiful than when crowded in a border as we too often see them.—W. BARDNEY.

VINES AT LONGLEAT.

(Continued from page 254.)

TEMPERATURES.

I AM aware that Hamburgs and some other Grapes of the same class may be grown in temperatures considerably lower than those I have given, while Muscats would stand a poor chance because the season would be gone before they ripened, and the Hamburgs I am now alluding to would rarely be above the quality we should expect to see in the mixed house of a fairly good amateur. If the berries were up to the size I have mentioned for our standard ($3\frac{1}{2}$ inches in circumference) they would not be "as black as Sloes;" or if, on the other hand, they were all that could be desired in colour, they would lack size. I have nothing to say against what I will call "amateurs' Grapes." I often see them very creditable and have occasionally been obliged to acknowledge that they were better than mine, but at the same time I know they did not reach the standard that would satisfy me.

A minimum of 55° at the first shutting-up, or what is called starting, is higher than most people allow, but I have never found that a temperature a few degrees lower than this had any effect on dormant Vines which had been well ripened. Again, I see no reason at this period as far as fire heat is concerned to give a higher temperature by day than by night, for till the Vines commence to grow it must be all night to them. So soon, however, as growth commences an increase may take place by day, and especially on a bright day, when the thermometer may safely rise to 75° , and when once the growths have started regularly to 80° at noon, but 60° to 63° is sufficient without sun. I do not give a higher night temperature till flowering time, and then it is not because the flowers want the heat, but it is to lessen the dangers which present themselves in the morning during a rapid rise from sun heat. There is not so much danger when a house faces south, as there is ample opportunity then to give sufficient ventilation before the sun has much power on the glass; but when one side of a span-roofed house (as in my case) or the whole of a lean-to faces the east, there is always a great risk at sunrise if the temperature has been very low.

So soon as the flowers are set swelling commences rapidly, and we reach the important period when the size of the berry is in a great measure determined. We cannot possibly have large berries unless there is a good first swelling, and this takes place in the very short time elapsing between the flowering and the stoning. If the temperatures I have given have not been exceeded the roots will now be in full activity and the foliage will be vigorous, when a little more heat

may be safely applied. If the extra heat can be secured by natural means so much the better; but if not, then we must have more fire as well as less ventilation.

If the house faces south the increase need only take place during the day, but in my case I find it advisable to increase somewhat at night also. About 63° to 65° is the minimum now; a rise to about 70° is aimed at soon after daylight, and if the weather is mild then 2° or 3° higher is allowed. With sun at midday a temperature from 80° to 85° is the rule, and we do not mind at this time if it rises another 5° or 10° after closing in the afternoon. When once the temperature has risen to the maximum by sun heat, it is admissible, if owing to the position of the house the sun goes off it early, to assist by fire heat to a considerable extent during daylight.

Supposing we have a house facing south the sun has the greatest effect on it at or before midday, and we are often enabled to close it entirely at one or two o'clock. There is no harm then to move the fire a little and endeavour by artificial means to keep some of the advantages as long as possible which have been gained by natural agencies.

But we must take care that the high temperature is not maintained after dark. The fire is allowed to burn up a little so as to warm the pipes, and then if necessary it must be checked again, but the exact details of management can only be made out on the spot after considerable practice and attention. I do not consider that a fair amount of fire heat in itself at suitable times does any harm; what I do object to is its being applied too much during nights and dull days, and thereby causing elongation, when, owing to the absence of light, which is quite as great a necessity as heat (and which so far as I know we have not yet succeeded in manufacturing satisfactorily), perfect consolidation is impossible. Supposing our minimum temperature to be 63° and our maximum by sun heat 85° , it will do no harm, but rather the reverse, while the fruit is swelling to so far assist the sun heat in the afternoon if the weather continues bright, that the temperature may be prevented falling lower than 75° or 80° till within half an hour of sunset, providing always the pipes have not to be made very hot, and that the minimum or something near it can be reached by midnight.

When stoning commences, which will be in about a month after flowering, and may be seen by the berries ceasing to swell, the rise after closing had better not be allowed, and a maximum of 80° is sufficient. In about another three weeks or a month there will be signs of renewed swelling, and in the case of the Hamburgs there will also very soon be signs of colouring, when the heat must be gradually lowered, and unless the fruit is wanted early fire heat will only be necessary to keep up a minimum of 55° or 60° while allowing continual ventilation.

In the case of the Muscats and thick-skinned Grapes the heat must be continued till they are fully ripe, say to the end of September or middle of October; and if during July and August (supposing the stoning to be completed early in the first-named month) there should be a natural rise of temperature 10° higher than the maximum I have named, it will do no harm so long as it occurs after abundant ventilation has been given. After the fruit is thoroughly ripe the temperature may be gradually lowered till we come as nearly as possible

to an even one of about 50° , and this may be continued for about two months, or till the foliage is all ripe and fallen.

When once the fruit is ripe I think our northern friends have the advantage of us, as they are not subject to such great fluctuations of temperature in autumn and winter. It is a common occurrence to us in the southern counties to have frost in the evening and to find an outside temperature of 55° in the morning, with the condensed moisture almost streaming down our walls; so that in autumn, at least so long as the foliage and the fruit are hanging on our Vines, it is not generally safe to have them in a lower temperature than 50° . I should very much prefer a temperature of 40° if we could keep down to that, but it is better to have it a little higher than to have great fluctuations sudden and frequent.—W. TAYLOR.

(To be continued.)

ROYAL HORTICULTURAL SOCIETY.

THE following announcement has been issued by the Council to the Fellows of the Royal Horticultural Society:—"The Council think it right to communicate with the Fellows at the earliest opportunity on the effect of the recent decision of the Court of Appeal on the position of the Society. Apart from any alteration of the views of the Commissioners, the effect of that decision may be stated to be the placing of the Society in the same position it would have occupied three years ago if the debenture-holders had not then compelled it to defend the action of ejectment brought by the Commissioners against the Society, and had released the Commissioners and the Society from all claims in respect of the £49,700 secured by their debentures. As was explained to the Fellows in the annual reports for the years 1879 and 1880 and at the general meetings in those years, the Society was forced to defend the action, not only by its duty of protecting to the utmost the interests of the debenture-holders, whose only security for the repayment of the interest on the large sum above named was the continuance of the Society's tenure of the South Kensington Gardens, but also by the certainty that if this duty was neglected the debenture-holders would take proceedings to make it responsible for such neglect. These proceedings would necessarily have resulted in costly litigation, which, if successful, would have rendered the whole property of the Society liable for the destruction of the debenture-holders' security. The Council believe that the effect of the decision of the Court of Appeal is to extinguish all rights of the debenture-holders as against the Society and the Commissioners. The action taken by the Council in defending these rights was, as above stated, a duty and a necessity, recognised and approved by the Fellows in general meeting; but, that duty performed, and the defence having failed, it is obvious that the result is in some respects to the advantage of both the Society and the Commissioners, and ought to facilitate the formation of arrangements for the future between the two Corporations. The Council, believing that an arrangement is possible which would be in strict accordance with the trusts on which the Commissioners hold their property, mutually advantageous to the Commissioners and the Society, and beneficial to the public, are endeavouring with this object to enter into negotiations with the Commissioners, the result of which will be communicated to the Fellows at the earliest possible time. In the meantime the Fellows may safely assume that no part of the programme for this season will be interfered with."

PLANTING POTATOES.

ON page 236 "W. J. M., Clonmel," asks for information concerning planting Potatoes with manure upon or beneath the sets in the trenches. Having tried both ways I can safely say

that there is no appreciable difference, but neither plan do I consider good. A much better one would be to mix the manure with the soil after the same plan as for Turnips when carrying out field-planting. To all our garden crops I give a good dressing of manure in the autumn, rough-digging or trenching for the winter ready for spring-planting Potatoes, &c. If I were compelled to carry out the plan of placing manure immediately over or under the sets I should certainly place it on the top, as the principal roots proceed from the shoots made from the crown of the tuber.—S. TAYLOR, *Acacia, Apperley.*

PACKING FLOWERS.

YOUR reply to a correspondent on page 247 with regard to packing flowers reminds me of a plan which I practised with success a few years ago. Fig. 58 is a tray which may be made to fit into any box that may be of a suitable size. If a box is to be made for the purpose a useful size would be 18 inches long, 9 inches or 12 inches

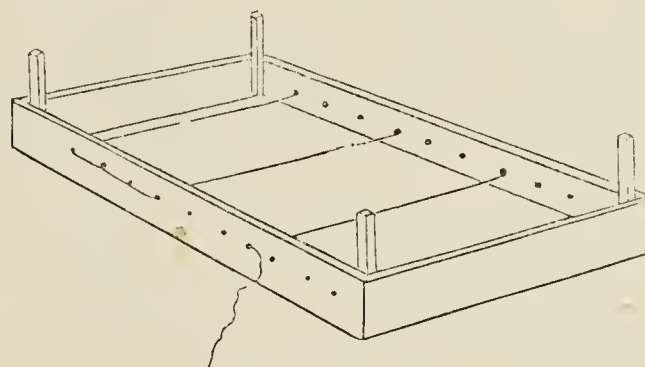


Fig. 58.

wide, and 12 inches deep. The trays should be made of half-inch (bottoms), and sides quarter-inch board, the latter to be 2 inches high, and nailed on to the sides and ends of the bottom, thus forming a tray $1\frac{1}{2}$ inch deep. Into each corner of the tray is then fixed a piece of wood $3\frac{1}{2}$ inches long and 1 inch square, rounding off the corner which projects into the tray. In packing the flowers a thin layer of damp moss is placed on the bottom of the tray. A little more moss is then placed pillow-fashion at one end. On this the first layer of flowers is laid, with their stems resting along the bottom on the damp moss. On these place a layer of moss, and by means of a small packing needle pass some small twine (fixed at one end) through the most convenient holes, formed by a small gimlet half an inch above the bottom, pass it across the top of the flower stems just behind the buds and through a hole in the opposite side; pull it tight, and place a small peg in the hole to secure the twine till another row of flowers and moss are ready to be secured in the same way by bringing the twine back again the opposite way.

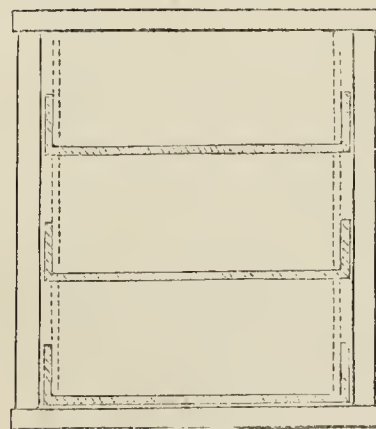


Fig. 59.

Flowers that grow in trusses and have short stems, such as *Stephanotis*, can be made quite secure by separating one "pip" and passing the twine behind it as each truss is placed in the row, mixing a little moss as the work goes on. When the tray is full the twine is secured at the end, and it is ready to be placed in the box (as is shown at fig. 59) one on the top of the other, the lid holding the whole firm. Flowers packed thus travel well a long distance, and come out fresh.—R. INGLIS.

PRUNING AND MANURING ROSES.

"SINGLE-HANDED" has written most intelligently on many horticultural subjects in the Journal, and in some instances his radical measures or reforms have set gardeners a-thinking. All that he has written I have carefully read and digested, much to my benefit; and now he strikes upon a new lode, and undermines and explodes the foundations of Rose culture as laid down by Canon Hole, Messrs. Thos. Rivers, J. Cranston, Wm. Paul, and a host of other true and most experienced rosarians.

I am not inclined to dispute generally all that "SINGLE-HANDED" has written on page 257 of the Journal, but I will notice in detail a few of his remarks or assertions. He lays it

down as an axiom that Roses do not require manure; that if manure is given to Rose trees the growth becomes so vigorous and continues growing so late into autumn that the wood is not ripened sufficiently to withstand a hard winter, or, if the winter be mild (as the past one), to give you firm hard wood bearing plump but dormant buds the last week of March.

This certainly reads very well. It is reasonable and logical; but, I ask, Cannot we ever get well-ripened wood by September or October, even though we apply manure? And surely the manure helps somewhat towards fine blooms and intense colour! Will "SINGLE-HANDED" dispute this? Unripe wood in October is caused very much by want of summer-pruning or thinning-out, also by the bad practice, for which amateurs have no excuse, of planting too thickly.

Excess of manure without doubt causes much destruction in such winters as 1880 and 1881; but my experience has not been that "when a mild winter occurs the buds start down to the earth line, only to be crippled later." And yet I think it must be "SINGLE-HANDED'S" experience. Let me give mine.

Mine was "a thin and not very deeply dug soil—just two spades, in fact." I grew about two thousand plants, dwarfs on Manetti, Seedling Briar, and own roots: 60 per cent. on Manetti. I made very careful experiments on pruning and manuring Roses. The results I now give. With little manure, growth slow, wood thin and hard, flowers very small and of poor substance. With liquid manure supplied to plants in rich ground—the plants mulched with light, short, and dry manure—the growth was strong and vigorous, flowers large and of good substance, and more of them.

Now I am willing to grant that had I not judiciously thinned out my trees at the latter end of August, and pinched off a little later the tips of these vigorous shoots, my wood would not have become sufficiently ripened to withstand the extreme rigours of such winters as we have had lately: but then if the wood had not been thick, strong, and hard, the lower buds would have started before now in such a spring as we have lately entered upon.

Before I can accept fully your correspondent's cultural directions of the Rose I should like to see his plants now and his blooms in July. It may be he will write and say, "I grow Roses only for garden effect and do not want your large blooms." But I take leave to say that you may add to your garden effect by means of large blooms.

I feel quite certain that if amateurs would give plenty of room between the trees (2½ feet each way I give), and carefully disbud all through the growing season, and as carefully cut away the old wood early in autumn, they may show and win at exhibitions, have a grand garden effect, and, moreover, have strong well-ripened wood, such as will withstand a temperature at zero, and the lower buds of which will not be enticed to awaken from slumber during such a February and March as those of 1882.

"SINGLE-HANDED" says that since he ceased using manure he has had a far better show of far better blooms than formerly, while the growth has been much stronger. I propose, then, that twenty well-known rosarians plant a bed of, say, fifty trees next autumn, on a thin and not very deeply dug soil, and follow out to the letter his cultural directions, and each write his experiences to the Journal in three and a half years' time, and may "SINGLE-HANDED" live to read these experiences, and may he be right and manure wrong. Then perhaps "WYLD SAVAGE," whom this commodity cost £1 a load, will once more delight us with his boxes of Teas and Hybrid Perpetuals at the great Rose shows.—J. A. W., Alderminster.

SEASONABLE NOTES ON ASPARAGUS.

OF all spring vegetables none is more valued than Asparagus, and young, healthy, strong-growing roots always give the finest produce. Old worn-out beds, and there are many of them, are not profitable. Beds containing plants healthy but weak in growth may be improved; but very old plantations, where blanks some yards in diameter occur, are not worth the labour which would be required to put them right. In such a case the best plan would be to make a new plantation. Old roots are hardly worth planting. No doubt they would grow, but would never equal strong seedlings planted when one or two years old.

Old beds may be unsatisfactory from two causes. One the great age of the roots, the other a failure of young plants from unsuitable soil or treatment. In the former case we would condemn the whole, but under some circumstances we would try and improve the latter. Probably too much manure, excessive wet, or poor soil may have been the means of failure. Seek the cause and apply the remedy at once. Vacancies should be filled, and unless failure occurred through too much manure a liberal top-dressing should be given. A little salt, soot, and guano applied

separately or mixed will be good. Even strong plants will be benefited by such a dressing. The quantity to apply much depends on the quality of the soil and the state of the roots; but the dressing must not be so thick as to hide the ground completely. During the time of rain is an advantageous period to apply it, as it is then taken to the roots and does its work quickly.

Where vacancies are being filled the roots must not be doubled in, but spread out straight; at the same time the roots already in the bed must not be maltreated. If a little very superior soil or manure can be placed round the roots as they are planted it will be of much service to them. A slight dressing of salt may be given at once, and at intervals during the next two months. Throughout this winter our Asparagus never appears to have been at rest. In January young growths some inches in height were visible, and now they are more plentiful. The main crop will come early. The rows are 3 feet apart. A fortnight ago all the top-dressing material was drawn from the crowns and forked just under the surface between the rows, a dressing of artificial manure being previously given around the crowns. This is the way we advise all established Asparagus roots being treated at the present time.

Where new plantations have to be made the ground should be prepared at once. It should be well trenched to the depth of 2 feet or more, old vegetable refuse being added freely. If the soil is cold and damp ashes may be placed at the bottom of each trench, and a quantity of sand or sandy soil worked in near the surface; a good dressing of manure should not be omitted. Beds need not be raised. Equally good or better results may be had from planting on the level. Roots one and two years old may be planted in their permanent quarters; older sorts we do not prefer. When the growths are starting freely is the time for transplanting, and not one plant need die. Three feet from row to row and 18 inches from plant to plant are good distances. In two or three years every other plant in the row may be taken up for forcing. The permanent plants will then stand 3 feet apart and produce fine heads. If the ground has been well prepared and the plants carefully put in they will want nothing more to insure their doing well throughout the season. Old Asparagus roots which have been used for forcing should never be planted again.

A constant supply of young roots should be kept up from seed. This must be sown early in April in fertile soil, the rows being a foot or more apart, and the seed being sown very thinly. Throughout the season the plants may grow a foot or more in height, and if they are too close together in the rows a few of them may be drawn out. By this time next year these roots will be ready for planting. When strong winds occur at the time the Asparagus stems are gaining their full height in summer many of them are broken; this will never improve the roots. Before it happens a stake should be placed to each root, and to this the stems should be secured. This year we think of employing some posts and rails along our Asparagus rows, tying the growths to them like Raspberries.—J. MUIR.

RAISING ORCHIDS FROM SEED.

MUCH attention has been paid in recent years to this matter, with some excellent results in the production of beautiful hybrids, and the interest connected with it has still further increased the number of those engaged in endeavouring to obtain distinct and attractive intermediate forms. I have made several attempts in this direction, some of which have been successful, and I will give an outline of my method of procedure, commencing with a genus to which I have given most attention—namely, *Dendrobiums*.

Of the many *Dendrobiums* now grown *D. nobile* is sure to be found in numerous varieties. This, therefore, since it is so often met with, is such a free grower, of hardy constitution, and so very accommodating in its period of blooming, may safely be taken as a parent in any attempts of hybridising. I should recommend that this be the seed-producing parent. First procure a good variety with strong pseudo-bulbs and perfect blooms; choose a stout flower, fertilise it with the pollen-masses of some other species similar in habit to it, remove the other blooms so that they may not for any length of time draw the strength from the flower operated upon. The plant in the meantime must not be kept very wet, just giving water sufficient to keep the pseudo-bulbs plump. The quantity will depend on the size of the plant, the time of the year, and also the condition the plant is in when the flower is fertilised. If much growth has started a little more must be given than if there are no breaks. If the operation has been successfully performed the flower will soon show signs of withering; the colours run along the divisions of the flower, and it will appear ready to fall. It must not, however, be plucked off, for as the flower withers the seed pod commences increasing in size, and so for a period of three to six

months the ripening process continues. At the end of this time the pod must be watched every day, for as soon as it bursts the seeds are ripe, and they must be sown.

Note every bloom that is fertilised, the date, the pollen parent, and any other remark it may be desirable to remember. The seed pod as it ripens should have a small label attached to it, on which a number is written that corresponds to the notes written in a book. The seed must be sown when ripe. I have prepared pots specially for this purpose and sown the seed upon the new soil, but this has invariably ended in disappointment. The best way is to shake the seed on the soil of a plant that is not likely to be disturbed for twelve months, and when sown not to interfere with it for that length of time. In many cases at the end of six, eight, or even twelve months the tiny seedlings will make their appearance; then comes a time of anxious expectancy. The seedlings must not be disturbed for at least another year, and if at the end of that period they are still too small to handle, let them make more growth in that position. If the soil is moderately good they will thrive better than if they were disturbed too soon. When, however, they can be pricked out fill a pan or pot carefully with peat, moss, and sand; after watering it prick the seedlings out as carefully as possible, so that the tiny roots may be preserved. Place it in a moderately shady position, keeping a sharp eye for slugs, woodlice, or cockroaches. If the plants establish themselves in the new soil the chances are that most of them will progress favourably, and they will continue growing, for in this young state it would not be wise, nor is it necessary, to give a resting or dry season with them. As they increase in size they must again be potted or placed singly in pans or baskets, and every attention should be paid them, and by all means they should be encouraged to make stout, sturdy, and plump growths. Such short pseudo-bulbs will be found to be much more satisfactory than thin attenuated ones, and will be much more likely to bloom quickly. In time—it may be four or six years from the first operation—pseudo-bulbs sufficiently strong to produce flowers will be formed; and the pleasure of observing buds form, and these develop into flower, and the blooms prove to be fine in colour, distinct in form, and possessing other features of an attractive character, will amply repay for all the waiting.

I have succeeded in raising a large number of *Cypripediums*. Many of these have not flowered; in fact some, though they are over four years old, are still in thumb pots. Others have bloomed, and amongst them *C. Swanianum* is distinct and good; the foliage beautifully variegated, the flowers larger and finer than *C. Dayanum*. There are two very distinct varieties of *C. Swanianum*—a light-foliage and a dark mottled-leaf form; both are very good. Mr. Dominy's and Mr. Seden's success in this direction are now well known. They have obtained forms of great merit, and they certainly deserve much credit for their labour.

Since *Masdevallias*, *Zygopetalums*, *Cattleyas*, *Laelias*, *Cypripediums*, *Dendrobiums*, *Calanthes*, *Phaius*, &c., have been raised there is a probability that others will as readily yield to the operator's skill. There is, therefore, every inducement to those who have the desire and opportunity to try during the present and coming season to fertilise good flowers, and with the object of originating new and distinct forms. It may in some cases happen that the result is not a cross or hybrid, the seed simply producing young plants of the parent that bore the seed. This, however, need not act as a deterrent, for if the operation is carefully performed the probability is that something good may result.

—W. SWAN, *Fallowfield*.

SCARLET RUNNERS.

THIS may, perhaps, be said to be one of the subjects most of us "know all about." If the majority of my readers are so well experienced so much the better, as they "know all about" what they will readily admit to be a most useful and deservedly popular esculent. According to my experience, however, there are many who either require advice or who do not treat Runner Beans so intelligently as their merits entitle them to. Excessive crowding is the most general and conspicuous mistake made in their culture. They are really very accommodating, growing and cropping in the neighbourhood of towns in positions where other vegetables fail. In addition they are made to do duty as ornamental climbers for the small front gardens, or they may and do prove equally as effective grown without stakes; but in every position overcrowding must be avoided if an abundant and continuous display of bloom, followed by plenty of tender pods, are wished for. If anyone doubts the advantage of sowing the seeds at good intervals let them completely isolate a single plant and mark the result. Three or four isolated plants either trained over an archway or

staked uprightly are really capable of producing sufficient Beans for a small family.

Where a greater quantity are required, instead of sowing in the orthodox double lines 1 foot or less apart, and the seeds 6 or 9 inches asunder in the rows, and making the stakes of each line meet near their tops, I advise sowing or planting, as the case may be, in single lines, and the seed or plants 1 foot asunder, the stakes to be connected or braced together by running other straight stakes across them near their points. Trained in this manner no wind will disturb them; the Beans will grow more robustly, one plant not unduly robbing its neighbour at the roots or crowding it at the top, and results in better and more lasting crops.

The enormous quantities of Beans sent to the London markets are grown in the open fields and without stakes. They are in most instances disposed in rows 3 feet apart, and the plants about 15 inches asunder. All running growths are kept closely pinched back, and the neglect of this precaution is the cause of failure in many private gardens where the plan of growing without stakes has been tried. Kept properly stopped, and splendid spikes of bloom, followed by great bunches of pods, will of a certainty follow; neglect stopping, and a thicket of growth and but few Beans will result. An old pair of scissors are suitable for the rapid snipping off the running growths. Close stopping does not injuriously affect the cropping; on the contrary, it seems to insure abundance of much stronger spikes of bloom than is obtained where stopping is not resorted to.

On light sandy or gravelly soils trenches prepared as for Celery to admit of abundance of moisture being easily given to the roots when required may be formed for them; but these trenches, or even double digging, are unnecessary where medium and heavy soils prevail. Plenty of half-decayed manure (nothing being more suitable than that obtained from the stable or cowyards) should be dug in, and a mulching of fresh manure, or failing this the grass from the mowing machine, be given before hot and dry weather is anticipated. If the manure employed be that which has previously done duty as a hotbed for Cucumbers or Melons it is scarcely good enough for Beans, and in order to add some of manurial agents it has undoubtedly lost it is advisable to lightly dress the surface of the soil prior to rainfall or waterings with some kind of artificial manure or soot. According to my experience artificial manures alone are not to be depended upon, but used in connection with the worn-out manure of necessity so much employed by gardeners they are very effective.

The time of sowing must depend upon the locality. In the southern counties the first sowing may be made at the end of April, or early in May is quite early enough, as the young Beans are most delicate and easily injured by late frosts. In most districts the second week in June is a favourable time for sowing, and unless the soil be light and poor one sowing will be sufficient. Where the first sowing is apt to fail early it is advisable to sow again about the middle of June, and this will prolong the supply till cut down by frosts. Runner Beans, as well as all other Beans, and also Peas, can be transplanted readily; and in case of failures either from inferior seed, frosts, slugs, chicken, or other causes, it is a good practice to sow seed as soon as failure is perceived in boxes of light soil and place under glass. The Beans, if a little warmth can be given, quickly germinate, and when hardened off and before becoming much rootbound they may be shook out and separated, and planted where required. Dwarf stopped plants are generally the first to mature pods, and again are most easily protected from the earliest autumn or winter frosts. The variety most generally grown is the Carter's Champion Scarlet, but many market growers find the old Scarlet Runners sell more readily and at a better price; they are much smaller, but more productive. Sutton's Giant White grows to a great size, is very productive, and of excellent quality; the pods of this variety are very suitable for exhibition.

Where a considerable number of Beans are grown, as in the case of gardens connected with large schools, asylums, houses of business, and even large private establishments, the rows of staked Beans may be disposed in rows 6 feet apart, and between these may well be grown two rows either of early Potatoes, Cabbages, or Cauliflowers, disposing these so as to admit of the Beans being got in without disturbing the other crops, these being cleared off before the Beans are far advanced. A single row of either the above may be grown between the Beans grown without stakes.

—W. IGGULDEN.

PRIMULA SINENSIS.

THE great improvement effected in these within the past few years, and the freedom with which they produce their lovely flowers at a season when there is very little to make conservatories or greenhouses attractive, render them general favourites, and as it is important to have them early in bloom no time should

now be lost in sowing the seed. Sow the seed in pots or pans well drained, and filled to about an inch from the rim with finely sifted light vegetable soil, such as thoroughly decomposed leaf soil or fine peat and silver sand pressed moderately firm and watered. Scatter the seed thinly over the surface and cover it very slightly with soil. In recommending light soil for such delicate seed as the *Primula* it should be understood that it must not be loose. Next to having suitable soil, the most important point in raising young *Primulas* is to have the soil uniformly moist, which may be easily accomplished by placing a piece of glass on the top of the pot or pan, and on that some moss. As the plants advance they must be placed in a close genial atmosphere near the glass, but should be shaded from the sun. Prick them out as soon as they are large enough to handle in some thoroughly decomposed leaf soil, to which has been added about one-third of loam and a little well-decayed manure, such as old Mushroom bed refuse, passed through a sieve. In this mixture they soon make a fresh start, and grow vigorously if placed in a hotbed, frame, or house where they can have a temperature from about 55° to 70° with a moist atmosphere. They should not be allowed to remain too long together after being pricked out, as they become drawn, and this should be avoided by timely potting in 3-inch pots, employing the same compost as recommended for the earlier stages of growth. After potting they should again be placed in a close house or pit, where they can be shaded until they again start.

By June they may be placed in their summer quarters. The best position for them at that season is a cold frame, and if it can be placed where it will be partially shaded this will be found far better than shading with mats. The floor of the frame should be covered with coal ashes. The only treatment during that season is attention to watering. As soon as they have become well rooted they should have their final shift into 6-inch pots, using similar soil as before with a little more manure added. In September they must be placed in their winter quarters, for if allowed to remain longer in the frame damp would cause them to turn yellow and spoil the beauty of the plants. A shelf near the glass is the best place. The temperature of the house should never fall below 40°, nor rise more than 10° above this during the day by artificial means. If a little soot be added to the water supplied the plants will be much benefited.—W. J. C.

NEWCASTLE SPRING SHOW.

THE Show was held in the Town Hall and Corn Exchange on the 5th and 6th inst. The Exhibition, in *Azaleas* especially, was a great improvement on previous displays, while *Cytisuses* and *Spiræas* were exceedingly good, particularly the former. *Hyacinths*, *Tulips*, and *Narcissus* were of average merit, but the competition was not quite so strong as in previous years.

For five plants, dissimilar, Messrs. John Thompson & Son, nurserymen, Fenham, were first with *Erica* Queen Victoria, really splendid, over 5 feet across; *Cymbidium eburneum*, ten flowers; *Imantophyllum miniatum*, twelve spikes; and *Dendrobium nobile*, over 4 feet across. Mr. J. Brown, gardener to Mrs. Joicey, Whinney House, was second with *Erica ventricosa coccinea major*, *Genetyllis tulipifera*, *Erica affinis*, and *Oncidium sphacelatum majus* with twelve spikes. Mr. Noble, gardener to Theo. Fry, Esq., Darlington, third; and Mr. Methven, gardener to E. Lange, Esq., Low Fell, fourth. *Azaleas* were well represented. Mr. Thompson was placed first in the class for four plants, having good examples. Mr. Methven was second with well-flowered plants but smaller, and Mr. Noble third with very fresh plants. The prizes for *Cytisuses* and *Spiræas* were won by Messrs. Wood and Storrie. For six *Cinerarias* Mr. Noble was first with remarkably fine plants, profuse in bloom, and with good foliage. For *Primulas* Mr. Stephen Nairn, Pilgrim Street, was first; Mr. Thomas Pattison securing the first prize for *Cyclamens*, and Mr. W. J. Watson was first for *Lily of the Valley*, the latter being very good indeed. For table plants Mr. Whiting, gardener to Mrs. Walker, Shot Tower, was first with a fresh even collection.

Auriculas were a generally good show and quite equal to former exhibitions of these flowers. For twelve plants (*Alpines* excluded) Mr. Thomas Hay, Killingworth, was first with good examples of Col. Champneys, Meteor Flag, Robert Trail, C. J. Perry, Taylor's Glory, Vulcan, and Frank Simonite; Mr. Adams, Swalwell, was second with flowers somewhat drawn. For six plants Mr. Jos. Watson was first with good examples, especially of Richard Headley, Smiling Beauty, Prince of Wales, and Geo. Lightbody. The latter flower also gained the premier prize for the best *Auricula* in the Show, the truss having six pips. Mr. John Garret was second. For four *Alpines* Mr. Edward Oliver secured the chief prize. The prizes in the class for green-edged, white-edged, a self, and grey-edged *Auriculas* were won by Messrs. Anderson, Garret, and Adams respectively. For twelve *Alpines*, dissimilar, Mr. Hay was again first. *Polyanthuses* were good. Mr. Wm. Henderson, gardener to Col. Cowen, Blaydon Burn, secured the chief prize with George IV., Formosa, Etoile, Tartarus, Queen of the Tyne, and President.

For twenty-four *Hyacinths*, not less than twelve varieties, Mr. Jos.

Watson was first, the best varieties being Grand Lilas, Blondin, L'Or d'Australie, La Grandesse, Koh-i-noor, General Havelock, King of the Blues, Grandeur à Merveille, Von Schiller, Fabiola, and Alba Superbissima. Messrs. Dewar, Thompson, and Nairns were awarded the remaining prizes as in order named. Mr. Dewar's plants being remarkably good. For twelve single *Hyacinths* Mr. Watson was placed first, H. S. Dewar second, and Mr. Nairn third. The *Tulips* and *Polyanthuses* were deservedly much admired, Messrs. Thompson and Watson securing first prizes in each class.

Cut flowers of *Azaleas*, *Camellias*, and *Rhododendrons* were not numerous, but of very good quality, and were shown on stands on a ground of *Adiantum farleyense*. *Roses* were remarkably good. Mr. McGevin showed an excellent stand of *Maréchal Niel* and secured the premier award, Mr. Corbett following with creditable blooms. Drawing-room *epergnes* were well represented, and generally much taste was displayed in arrangement. Mr. J. Rutherford, Durham, was awarded the first prize. The top tier had *Phajus grandiflora*, *Dielytra spectabilis*, *Spiræas*, and *Lily of the Valley*; the base was furnished with *Anthurium Schertzerianum*, *Roses*, and *Camellias*, and the whole relieved by *Ferns* had a very pleasing effect. Mr. J. Hughill was second, and Mr. J. Ryner third. Bridal bouquets were also good. Mr. McIntyre was first with one consisting of *Gardenias*, *Lily of the Valley*, and white *Azaleas*, neatly fringed with *Adiantum gracillimum*. The first-prize hand bouquet by Mr. Hughill was very neat, consisting of *Ericas*, *Phalænopsis Schilleriana*, *Lily of the Valley*, *Spiræas*, and *Fern fronds*.

In the second division, open to all except nurserymen, most of the prizes were awarded to exhibitors in the locality, and *Azaleas*, *Spiræas*, *Cytisuses*, *Deutzias*, *Lily of the Valley*, *Hyacinths*, and *Tulips* were all well shown in their classes.

The following were the entries of the Exhibition (between four hundred and five hundred flowering plants, including *Hyacinths* and *Tulips*, &c.)—74 pots of *Lily of the Valley*, 35 hand bouquets, 96 *Spiræas*, 154 *Auriculas*, 48 *Primulas*, 54 *Cinerarias*. This is a considerable falling off from last year.

Messrs. William Fell & Son contributed a superior stand of hardy *Coniferae*; they had also an excellent early *Rhododendron longifolium* in bloom from the open air. Mr. W. S. Watson, Fenham Nurseries, showed a stand of Japanese *Maples*, which were much admired by the visitors.

DORYANTHES PALMERI.

IN the west octagon of the temperate house at Kew a large and remarkably handsome plant, probably the finest in England, of *Doryanthes Palmeri* is now flowering—an event of considerable interest, as it is the first time the species has flowered in this country. The plant has for some time been grown under the name of *D. excelsa*, a well-known species, which has been in cultivation from the commencement of the present century, but when the flowers expanded it was at once recognised as that named above. The plant, though of slow growth, appears to thrive admirably at Kew, and its fine vigorous condition is indicated by the length and breadth of the leaves. Several of the largest of these exceed 7 feet in length, and are 7 or 8 inches broad, tapering to each end, somewhat like a gigantic *Cordyline*. The flower spike rises to the height of 10 or 12 feet, bearing the flowers in a rather close panicle near the summit. These are each about 4 inches in diameter, with six oblong-elliptical divisions, white on the upper surface near the centre, but tinged with rich crimson near the margins, and a still brighter shade approaching scarlet on the lower surface. The inflorescence thus has a very rich and imposing appearance when viewed from below, as is the case at Kew, the plant being grown in a large tub which elevates it several feet above the floor of the house. A leaf and portion of the spike were shown by Mr. J. Smith, the Curator, at the Royal Horticultural Society's meeting at Kensington on the 28th ult., and attracted much attention.

Mr. W. Bull of Chelsea introduced plants of this species in 1873, and the following description appears in his catalogue for that year, which was subsequently accompanied by the woodcut, (fig. 60, p. 301), here reproduced. It represents the inflorescence greatly reduced, and a single flower. "This novelty is described by Mr. Hill, who is well versed in plants, as one of the finest productions of the colony of Queensland. It is found in one small patch on the mountains of that region, and about two hundred miles distant from the nearest township. In its habit of growth it is described as resembling the commoner *D. excelsa*, but the ends of the leaves are less pointed, and the thimble-shaped cup is more distinct. The plants have a stout bulbous base, clothed with the remains of the imbricated leaves. These are elongate, narrow lanceolate, 3 to 4 inches wide, quite smooth, narrowed downwards into a channelled marginate stalk-like portion, which widens below so as to clasp the bulb, and tapering upwards into a long narrow point. The flowers form a pyramidal spike, 12 to 18 inches high, and 10 to 12 inches broad, the flowers being red, with the centre lighter—almost white. It is a

beautiful species, and is described by those who have seen it in its native home as being greatly superior in beauty to the older and more familiar species."

It may be added that Mr. Hill discovered the plant in 1860, and it first flowered in the Botanic Garden, Brisbane, in 1870, when it was shown at an intercolonial exhibition in Sydney. *D. excelsa*, although much longer known, is by no means common, which is perhaps partly owing to the flowers being so rarely produced; seldom, indeed, until the plants have attained considerable age. It is, however, a magnificent plant when bearing flowers, the latter being of a rich crimson hue, and differing from those of *D. Palmeri* in the petals being much larger and more narrow. An excellent figure of it was published in the "Botanical Maga-

zine" of 1814, prepared from a plant at Bromley, Kent, which was stated to be the first time the species had flowered in Europe. —L. C.

HERBACEOUS PLANTS IN THE CAMBRIDGE BOTANIC GARDEN.

NUMEROUS plants are now flowering in that portion of the Cambridge Botanic Garden devoted to herbaceous plants, and among them the following are especially noteworthy either for their rarity or beauty.

Cheiranthus mutabilis.—This, being unlike other garden species in colour, is of considerable interest. It is lilac or purplish lilac,



Fig. 60.—DORYANTHES PALMERI.

and the effect is very pretty. Lately it has been in flower on the rockery, but in the greenhouse it has reached a finer development and has been really handsome.

Cochlearia pyrenaica.—A charming species of about 4 inches in height. It has close racemes of pure white flowers, beneath which the leaves form a neat tuft. Another Crucifer, *Cardamine trifolia*, has also white flowers, and is one of the prettiest plants of its kind. It was apparently one of Parkinson's favourites.

Muscari.—This genus contains some very lovely species. What is more charming than *M. botryoides*, and especially the variety *pallens*? The white form is also very pretty. *M. Heldreichii* is uncommon, and one of the best. There are three forms of *M. moschatum*, the best of which is large in size with well-coloured blossoms; the other two have small and dull-coloured flowers respectively.

Narcissi.—One of the earliest was the pretty Tenby Daffodil, *N. obvallaris*, which is quite distinct from the common Daffodil. Now there are many kinds of beauty and interest. The fine forms Emperor and Empress are good for culture in pots, and are now

coming on out of doors. Other kinds of the Ajax section worth noting are *N. Telemonius*, the charming little *N. minor*, and *N. pumilus* fl.-pl., which seems one of the best of all the doubles, it is so full, well-formed, and handsome. Among the Tazettas, *N. T. var. floribundus* is perhaps the best; it is not unlike *citrinus*, but has a larger flower. Several of the forms of *N. odoratus* are good, of which the best is perhaps the variety *interjectus*. Of the *N. incomparabilis* varieties are several fine doubles, and the best is *albus* fl.-pl. The single varieties are after all the most enjoyable, and besides *incomparabilis* there are the varieties *concolor* and *albus*. *N. montanus* and *moschatus* are choice and lovely species of very pale buff or yellow. The earliest of the poetical varieties is *N. ornatus*, which has a fine crimson eup and is very handsome. Recently also flowers of *N. Burbidgei* expanded; this is a fresh acquisition, and is quite distinct and lovely. It has an orange eup, and the perianth is suffused with pale yellow. It seems to be an ally of *N. ornatus*. This bed we cannot leave without noticing *N. Macleayi*, which always charms on account of its elegant form and distinct appearance.

Othonna cheirifolia.—A curious suffruticose Composite from South Africa, and quite hardy. It has narrow glaucous leaves, and now bears large but stiff-looking flower heads. It is a strange-looking plant, and would be an excellent one for formal arrangements.

Primula rosea.—This most charming species is the earliest here in the open bed where sunk between four bricks, from which it has doubtless had some protection. Its colour is much finer than when grown under glass. A rare species has lately flowered called *P. carpatica*. It has yellow flowers with aromatic odour, and leaves that are of the common Primrose type. We are reminded in the conservatory of several kinds lovely in pots. Perhaps the chief to mention is *N. verticillata*, which has excessively powdered leaves and yellow flowers. *P. erosa* has been pronounced good, and *P. cortusoides* nearly all value for pot culture.

Pulmonarias.—These claim place amongst the choicest of spring flowers. One of the best, now over, has been *P. saccharata*. Its leaves are elegantly spotted, and the pink or rather carmine flowers are lovely to an extreme degree. The other of the two best is *P. angustifolia* var. *mollis*. It has flowers that are almost entirely blue, and such a shade as to be like a *Lithospermum*.

Ranunculus gramineus.—An extremely bright and pretty species for the border. It grows freely, and has a choice appearance. The leaves are grass-like and glaucous, while the flowers, which are of the brightest yellow, are just commencing to expand. Two other choice species which do well at Cambridge are *R. fumariaefolius* and *R. montanus*, both yellow, the latter very fine.

Scilla italica.—This happens just now to be the only species in flower. It is, however, a very pretty plant. In habit of foliage there is not perhaps a better, and as regards the flowers it is extremely neat. The colour is pale porcelain blue. The scapes do not much exceed the leaves.

Sisyrinchium grandiflorum album.—Perhaps the most charming of all the species. In this variety it is extremely beautiful, and lasts in flower a very long time.

Tulipa acuminata.—Though rather common among other species there is much pleasure to be derived from its golden yellow colour and elegant form. It is one of the most elegant and graceful of all. Its flowers are never stiffly erect, nor are the stems rigid, but from the base to the highest point of the plant there is but a succession of the most graceful curves. The leaves are narrower than the majority of species. It has something of the aspect of *T. sylvestris*. Other choice kinds coming into flower are *T. Greigi*, *T. Eichleri*, and *T. turkestanica*. *T. altaica* is just over.—R. I. L.



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, James McIntosh, Esq., in the chair, the following candidates were elected Fellows of the Society—viz., Mrs. Carvosso, Francis C. Turner, Mrs. Alfred R. Watson.

— WE have had the pleasure of inspecting CAPT. PATTON'S TULIPS, which were referred to last week. Upwards of a hundred varieties were in flower, and the number has since increased daily. The display is not only attractive but instructive, as the collection affords an excellent opportunity of comparing the relative merits of the varieties for bedding purposes. As the varieties open at different times it is not possible for the whole of the three hundred to be seen at once, but towards the end of this or the beginning of next week will be a good time for inspecting the collection, and all who are interested in this the most brilliant and diversified of spring flowers are welcome to see the present display. It may perhaps be of use to some readers to say that Alpha House is about ten minutes' walk from the Edgware Road station of the Metropolitan Railway.

— THE WIMBLEDON AND DISTRICT ROYAL HORTICULTURAL SOCIETY will hold their summer Exhibition in the grounds of Cannizaro House, Wimbledon, on July 5th, when the usual liberal provision for competitors will be made, the prizes including a number specially offered by friends of the Society.

— A SINGULAR instance of a HYACINTH FLOWERING UNDER GROUND has been submitted to us by Mr. Cummins, gardener to A. H. Smec, Esq., The Grange, Wallington. The bulb, with others, had been planted in a bed in the usual manner, covered with soil, and the bed surfaced with manure. The growth of the Hyacinth being arrested by a stone the spike was partly broken, but not so much as to stop its growth, and it extended downwards until the end of it was forced below the bulb. Strange to say, in this position, and 6 inches below the surface, the flowers not only expanded, but the colour (blue) was as clear as if the spike had grown in the air and had perfected the flowers under the influence of light. The foliage was perfectly blanched, and shortly withered on exposure to the air, but the flowers retained their texture; indeed so natural in character and colour was the flower spike that we identified the variety at a glance as Baron Van Tuyll. The plant was dug up accidentally by Mr. Cummins, and was sent to our office by Mr. Smee, and thence to the meeting of the Scientific Committee of the Royal Horticultural Society, of which a report appears on page 305.]

— THE LEEDS HORTICULTURAL SOCIETY announce that their annual Summer Show will be held in the Horticultural Gardens of that town on June 21st, 22nd, and 23rd. Liberal prizes are offered in seventy-seven classes for plants, flowers, and fruits, the first-named being particularly well provided for. For stove and greenhouse plants the prizes are especially valuable. In the class for sixteen specimens the first, second, and third prizes are £18, £12, and £6. Exhibitors of groups of miscellaneous plants and Orchids are also encouraged by substantial prizes.

— WE regret to record the death of Mr. JOHN JARDINE, who died suddenly at Arkleton, Dumfriesshire, on the 30th ult. "Heart disease," says the *Esksdale Advertiser*, "was the cause of death," and further adds, "Mr. Jardine succeeded in early life to the estate of Thorlieshope in the upper reaches of the Liddle, best known to readers of Sir Walter Scott throughout the civilised world as the 'Charlieshope' of Dandie Dinmont. Though he farmed his own property he resided at Arkleton in the valley of the Fwes, the place and all its surroundings being converted by him from an old Border peel into quite a model residence. Though the mansion was replete with all the comfort and refinement of the present day, its distinctive features in days of feud and foray were not sacrificed, unless they may be said to have been impaired by the superb gardens and vineries from which year after year Grapes were forwarded to the metropolitan and other exhibitions, which carried all before them, and caused the name of Arkleton to be celebrated for its horticultural products throughout the kingdom." The grower of those Grapes, Mr. Dickson, it will be remembered, left Arkleton a few months ago by the advice of his employer to take charge of the gardens of R. Jardine, Esq., M.P., at Castlemilk.

— THE CROYDON HORTICULTURAL SOCIETY will hold their annual summer Show in the grounds of Wellesley House; and the autumn Show of Chrysanthemums and fruit will be held on November 17th and 18th in the small Public Hall, Croydon. Numerous classes are provided at both, but especially at the former, the prizes being substantial in all the chief classes.

— THE first portion of the celebrated MAYFIELD COLLECTION OF ORCHIDS, which was formed by the late John Russell, Esq., was sold at Mr. J. C. Stevens' rooms, King Street, Covent Garden, on April 5th. Some handsome specimens were included amongst those sold, and very good prices were realised in several cases, some of the best being the following—*Cypripedium caudatum*, a very large specimen 3 feet in diameter, £22; other smaller plants of the same species being sold for fourteen and fifteen guineas. An excellent example of the pretty *Promenæa citrina* realised ten guineas. An extraordinary *Odontoglossum citrosum*,

3 feet in diameter and bearing 180 flower buds, was sold for £9 19s. 6d. A fine plant of *Bollea cœlestis* of an excellent variety realised fourteen guineas, and other smaller plants were sold for proportionate prices.

— AN elaborate treatise upon the WEATHER of 1881 as observed in the neighbourhood of London has been issued by Mr. Edward Mawley, Addiscombe, Croydon, one of the Honorary Secretaries of the National Rose Society. It comprises tables of meteorological observations for each month in the year, they being accompanied by comparative comments upon the weather in other districts and in previous years, concluding with a summary of the observations. Mr. Mawley deserves much credit for the care and labour he has expended upon the work, which will undoubtedly possess much interest and value for the scientific and amateur meteorologist. It is published by Messrs. E. Stanford, Charing Cross, and Withams & Strahan, Laurence Lane, E.C.

— AT a meeting of the South African Philosophical Society attention was called to the haphazard system pursued in connection with the management of the SOUTH AFRICAN FORESTS of the Knysna district, owing to the practice which prevailed of wood-cutters felling a tree and destroying a couple of hundred other trees in getting it out. The wood-cutters who do the mischief are represented to be merely squatters, having no holdings, and generally in the hands of the wood-merchants. The Knysna forest, one of the few remaining forests of the colony, will, it is feared, if no action is taken by the Government, soon be a thing of the past. The entrance to the harbour only wants a little deepening to make it one of the finest on the coast, as the water in the river is just as deep now as it was when surveyed many years ago; but if the forest is destroyed, the depth of the river must be seriously affected. Last year some 9000 tons of wood were shipped, independent of that sent inland.—(*Indian Agriculturist*.)

— IN Mr. W. Bull's extensive and choice collection of Orchids at Chelsea the ODONTOGLOSSUMS are now extremely beautiful, a large number of species and handsome varieties being in flower. The house specially devoted to these is particularly gay, and gives at a glance an admirable idea of the extent of variation in the genus and the great beauty of many species. The well-known *O. cirrhosum*, *O. Rossi*, *O. crispum*, *O. gloriosum*, *O. maculatum*, *O. Halli*, and many others are abundantly represented by varieties of great merit—all the best, indeed, that can be obtained. One form of *O. cirrhosum* was particularly fine, the sepals and petals being very broad and the spots rich in colour. *O. Halli nigrum*, which was certificated at the Botanic Society's Spring Show, is remarkable for the large, deeply coloured, nearly black-barred flowers—a wonderfully fine and distinct variety. One specimen of a pretty form of this species had four spikes, one bearing twenty flowers, and the others fourteen, thirteen, and eleven each. Of the numerous new introductions and varieties very notable is *O. baphicanthum*, which has whitish flowers spotted with chocolate, a variety being grown greatly superior to the type. *O. crispum mirabile* is superb, with large flowers of excellent shape and richly spotted with chocolate at the base of sepals and petals. *O. Pescatorei album* is a pure white-flowered variety, very handsome; with *O. triumphans*, *O. Wilckeanum album*, *O. gloriosum nigro-pictum*, and *O. cordatum*, constitute an unrivalled display at the present time. In the other departments Cattleyas are advancing grandly, *Masdevallias*, *Dendrobiums*, and the magnificent plants of *Cymbidium Lowianum* being conspicuous features amongst many others that are noteworthy.

— THE *Philadelphia Telegraph* states that an examination of the DELTA OF THE MISSISSIPPI shows that, for a distance of about three hundred miles of this deposit, there are buried forests

of large trees, one over the other, with interspaces of sand. Ten distinct forest growths of this nature have been observed, which must have succeeded one another. These trees are the Bald Cypress of the Southern States. Some have been observed over 25 feet in diameter, and one contained 5700 annual rings. In some instances, too, these huge trees have grown over the stumps of others equally large. From these facts geologists have assumed the antiquity of each forest growth at 10,000 years, or 100,000 for the whole. This estimate, however, would not include the interval of time that elapsed between the ending of one of these vast and wonderful forests and the beginning of another.

— OF Orchids now in season there are few, if any, which can rival *Cœlogyne cristata*. It has many good points. It is cheap to purchase, easy of cultivation; it flowers freely, and its flowers, besides being very beautiful, have the additional advantage of enduring fresh for several weeks, nestling among the egg-shaped bulbs and deep glossy green leaves. Some years ago Mr. R. Yates of Sale, near Manchester, grew this species extensively, and had some superb examples of it, and the largest fetched as much as twenty guineas. I quote this fact because quite recently a superb specimen, 5 feet in diameter and a yard deep (bearing quite a thicket of flower spikes, some of which bore from six to nine blossoms), was recently sold by auction in London, and was bought by Mr. Sander of St. Albans for the modest sum of eleven guineas. It is supposed that this plant was from Sir Trevor Lawrence's collection, in which doubtless by this time stage room is becoming scarce. It does not yet appear to be known very widely that there are four distinct forms of this chaste Orchid. First and dearest, the pure white variety *C. cristata alba* from the Gledhorn collection, and for which Mr. Bull is said to have given £200; next in whiteness and chastity comes the variety *C. cristata Lemoniana* (in compliment to Sir Charles Lemon), or, as it is often called, "citrina," in allusion to the yellow blotch on the lip; then comes the usual type now grown in all good gardens; and lastly, but not by any means least worthy, comes *C. cristata major*, a large-flowered free-growing form of the type, bearing bulbs the size of large hens' eggs, and spikes of seven to ten flowers of better substance and no flatter in form than any other variety whatever. Instead of the common type growers would do well to obtain this variety, which I hear is now in bloom at Chelsea, with nine large flowers to the spike, although the blooms producing them are not so large as the above description indicates, but such a size they really do attain when well grown.—(*The Gardener*.)

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held by permission of the Council of the Institution of Civil Engineers at 25, Great George Street, Westminster, on Wednesday, the 19th inst. at 7 P.M., the following papers will be read—"Barometric Gradients—Wind Velocity and Direction at the Kew Observatory," by G. M. Whipple, B.Sc., F.M.S., and T. W. Baker, F.M.S. "On Difference of Temperature with Elevation," by George Dines, F.M.S.

— IN the course of some interesting remarks by Mr. J. E. Russell upon tropical fruits and flowers, recorded in the Transactions of the Massachusetts Horticultural Society, occurs the following passage in reference to a CACAO ORCHARD IN CENTRAL AMERICA:—

The most valuable indigenous production is the Cacao tree, from the fruit of which chocolate is prepared. The description given by the Spanish discoverers of the drinks used by the natives indicates that this was early known to them. The Cacao tree grows about as large as a moderate-sized Plum tree, and is exceedingly beautiful. They are raised in nurseries and afterwards planted in orchards, and by the side of each a Banana is set to shade the young Cacao tree until it is 5 or 6 feet high. Most tropical plants when growing wild must spring up in the shade, and consequently when raised by art they must have shade afforded them artificially. At intervals in the orchards is

planted a tree called "Madre de Cacao" (Mother of Cocoa), a species of *Erythrina* or Coral Tree. It sheds its leaves towards the end of the dry season, and during the wet season flames out into crimson flowers, resembling those of the *Gladiolus*, and in such numbers as to completely cover the tree. It thus affords abundant shade during the whole year, and to give this shade to the Cacao trees is the object in planting it. On the plantation of the Lacayo family, "Las Malaccas," the "mother trees," are old, and more than 70 feet high, and in May, the first rainy month, are all in gorgeous blossom. When these trees are seen from an elevated position, mixed with the green of the Banana, a Cacao tree affords a sight, not merely of beauty, but of wealth. The flowers of the Cacao tree itself are borne in bunches, and are of a delicate pinkish white. The trees are very infertile, producing only from 25 to 30 ounces of seed in a year. The seeds are borne in a pod shaped very much like a Cucumber, and are embedded in a pulpy substance, which is very pleasant to eat, and this is known to the monkeys, which give the proprietor of an orchard much trouble to protect his trees from them. The Nicaragua Cacao is the best in the world. The French chocolate manufacturing firm of Menier acquired a large tract of land in that country for the purpose of producing it. The native method of preparing the cocoa is by putting it in Gourds 6 or 7 inches deep with some fine corn meal, and stirring it with a stick, when it rises above the mouth of the Gourd in a foam stiffer than that of strong ale. It is almost always drunk cold.

ROYAL HORTICULTURAL SOCIETY.

APRIL 11TH.

THOUGH the weather was exceedingly fine the attendance of exhibitors or visitors at the Society's second Promenade Show was not large. Several fine groups were staged in the conservatory, but the Council-room was comparatively bare.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. The exhibits were few and not of great importance. Mr. C. Kershaw, Brighouse, sent samples of a seedling Rhubarb of good colour, and the Committee requested that roots be sent to Chiswick for trial. Mr. J. Douglas, The Gardens, Loxford Hall, Ilford, exhibited two good fruits of Directeur Alphonse Pear grown in an orchard house. From the Society's gardens fine dishes of Apples were sent, comprising Lane's Prince Albert, Rother Eisen, Norfolk Bearer, Norfolk Coleman, and Norfolk Beaufin, all in good condition, but the Committee considered that the three last names were synonymous.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. H. Cannell & Sons, Swanley, had a pretty collection of cut flowers, including a box of very fine double Cinerarias, which were especially noteworthy. The varieties were Sophia, very full, rich rose-crimson; Ada, deep purple, large; Phoebe, pink and white; Kate, white tinged with pink; and Mr. T. Lloyd, deep blue purple, large. A good yellow Wallflower named Cannell's Yellow, with the pink-and-white-striped Star-and-Stripes Verbena and the yellow *Richardia hastata* were also shown. A vote of thanks was accorded. Mr. B. S. Williams, Upper Holloway, contributed a group of new plants, comprising a fine specimen of the large-flowered pink-tinted *Crinum Makoyanum*, the orange-scarlet-coloured *Imantophyllum aurantiacum*, the white *Amaryllis* Mrs. B. S. Williams, the white-spathed *Anthurium Lucien Linden*, several Palms, *Alocasias*, and *Aralias*.

Mr. C. Green, gardener to Sir George Macleay, Pendell Court, Bletchingley, sent several interesting plants and flowers, among them being a flower head of a rare and handsome Proteaceous plant, *Telopea speciosissima*, the Waratah of New Holland, for which a cultural commendation and vote of thanks were awarded. The flowers are very bright red, in a close globular head, with long dark red bracts at the base. The leaves are leathery, like those of many other allied genera, and coarsely serrated. Flowers of *Canna iridiflora Ehemanni*, and *Orchis tephrosanthes* were also shown, the former highly coloured, the latter neat, purple and mauve. Mr. Fagg, gardener to Lieut.-Col. Deare, Englefield Green, Egham, showed a plant of *Dendrobium macrophyllum Dearei*, which has large flowers similar to the species, but pure white; they also possess the peculiar powerful odour of the type. Mr. Lloyd, Brookwood Asylum, sent plants of a new *Coleus* named Progress, which has neat deeply crenated leaves curiously spotted, streaked, and splashed with crimson, maroon, green, and yellow on a light ground. Mr. A. Chapman, gardener to R. S. Holford, Esq., Westonbirt, sent blooms of a sport from Rose Marie Van Houtte, distinct, rather loose, but very fragrant, and with a fine reddish tint in the petals.

Mr. R. Parker, Tooting, sent two baskets of *Megaseas*—one, *M. cordifolia*, with neat rich purple flowers in close heads, and the other, *M. crassifolia media*, with drooping pink flowers in loose panicles. The former is of very vigorous habit. Mr. R. Dean, Ealing, had a pretty group of Primroses and Polyanthus, including amongst the former Royal Purple, rich purple; and Brilliant, deep maroon. Amongst the latter Mont Blanc, white, with orange eye, and Premier, pale yellow with orange eye. Mr. Howard, Southgate, sent plants of two Tree Carnations—Mr. Dickson, salmon streaked with red, and Mrs. Buck, similar but lighter and with fewer streaks. Mr. Henry Hooper, Bath, exhibited a fine collection of Pansy blooms, for which a vote of thanks was accorded. Mr. Lyon, gardener to Sir E. H. Scott, Bart., Sundridge Park, Bromley, sent a fine basket of Miles' Hybrid Spiral Mignonette, the plants being in excellent health and bearing

long spikes of flowers. A cultural commendation was awarded. Mr. G. F. Wilson, Weybridge, sent flowers of *Ranunculus Heldreichii*, a species having very large shining yellow flowers.

In the conservatory there was a pretty but a small display of plants and flowers, the groups being confined to one side of the central walk. Captain Patton, Alpha Road, Regent's Park, exhibited a large collection of Tulip and Narcissus blooms, the former including more than a hundred very distinct varieties. The flower stalks were placed in small glasses filled with damp sand and moss, but the flowers had faded considerably. A silver medal was awarded. Messrs. H. Lane & Son, Great Berkhamstead, staged a handsome group of *Rhododendrons*, mostly of moderate size, but flowering profusely. One of the most telling varieties was *Auguste Van Geert*, with very large loose head of rosy crimson flowers. A group of Roses in pots was also contributed by the same firm, all very healthy, and several, especially *Anna Alexieff* and *Abel Grand*, being well flowered. A silver medal was awarded for each contribution. A similar award was also granted to Messrs. Barr & Sugden for an extensive collection of Daffodils and hardy plants. Mr. B. S. Williams, Upper Holloway, was awarded a silver medal for a large and brilliant group of Orchids and *Amaryllises*, the latter including some excellent varieties, and all were very tastefully arranged. The Cranston Nursery and Seed Company, Hereford, sent five boxes of Rose blooms, *Niphetos*, *Maréchal Niel*, and *Madame Emile Dupuy* being largely represented, with many other good varieties, especially Teas, the Red Safrano being especially noteworthy; plants and flowers of *Hoya globulosa* were also sent. A bronze medal was awarded.

First-class certificates were awarded for the following plants:—

Anthurium Schertzerianum Woodbridgei (Woodbridge).—A very handsome variety from the Syon House Gardens, remarkable both for the colour and size of the spathes. These were $5\frac{1}{2}$ to 6 inches long and $3\frac{1}{2}$ inches broad, of an extremely rich tint.

Rhododendron Forsterianum (Veitch).—One of the *R. Veitchianum* type, a beautiful form, with large white open fragrant flowers about 6 inches in diameter, with a slight yellow blotch in the centre. They are borne in neat heads, three or four in each. The habit of the plant is compact, the leaves being elliptical in form, 4 inches long by 2 broad.

Cattleya Mendeli Jamesianum (James).—A superb variety with extremely richly coloured flowers, the sepals and petals broad, of a soft purplish hue, the lip deeply bordered with rich crimson, a yellow centre, fading to nearly white.

Verbena Stars and Stripes (Cannell).—A most distinct variety, with large flowers about an inch in diameter, and regularly striped with rose and white.

Crinum Makoyanum (Williams).—One of the most handsome *Crinums*, having large open blush-tinted nearly white flowers, borne on a scape 3 feet in height. Six or more flowers are produced on each head, and the plant has a very noble appearance.

Primula latifolia (Dean).—In the habit and form of the flowers this is rather suggestive of *P. nivalis*, though otherwise very distinct. The leaves are coarsely serrated and have a plain smooth surface; the flowers being rosy purple with a pale yellow eye, and are borne in loose umbels.

Dendrobium macrophyllum Dearei (Fagg).—A beautiful variety with pure white flowers, similar in shape and size to the species. It was collected in South Manila by Lieut.-Col. Deare, who imported the plant shown.

Carnation Alice Duffield.—Mr. G. Duffield, gardener to K. Meyer, Esq., Winchmore Hill, N., obtained a second-class certificate for this very distinct and pretty variety of Tree Carnation. The flowers are large, full, of good form, white streaked with rosy pink.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair. *Rhododendrons*.—Mr. Mangles exhibited a beautiful series of hybrid *Rhododendrons* as follows—*R. Forsterianum*, between *R. Edgeworthii* (male) and *Veitchianum* (female), raised by Mr. Otto Forster of Lehenhof, Austria, who was the first to bloom *R. Nuttallii* in Europe. It is a beautiful combination of both parent forms, being very large and fragrant. The hybrid appears to be quite barren. Hybrid between *R. campylocarpum* (yellow), and a crimson hybrid as the female; the flowers are pendulous; the yellow tint of the male parent being nearly lost, but the characters of the flowers are retained. It is pink when first opening, but almost white finally. This hybrid bears seed and has good pollen. Hybrid between *R. Thomsoni* and *R. Fortunei*; it is peculiar in having far more flowers in the truss than either parent. It is apparently fertile and has an abundance of good pollen. Hybrid between *R. argenteum* and *R. ponticum*; the flowers very inferior to the male parent, tubular, pink, and with aborted anthers, the colour of *ponticum* being prepotent. *R. niveum*, a true species from Sikkim, with peculiar lavender-coloured flowers. The flowers when young are snowy white below, hence the specific name. *R. virgatum*, a dwarf Himalayan species, with the flower buds in the axils of the leaves. He also exhibited seedlings and hybrids of *R. ponticum* and *R. arboreum*. In the latter the colour of *arboreum* is prepotent over that of *ponticum*. *Azalea linearifolia* from Japan. A vote of thanks was unanimously given to Mr. Mangles. Another collection was sent by Hon. and Rev. Mr. Boscawen from Cornwall, including the true species mentioned above, *R. niveum* and *R. arboreum*, and many seedlings, amongst which may be noticed the white Hon. Mrs. Townsend Boscawen. A vote of thanks was given to Mr. Boscawen for his collection of *Rhododendrons*.

Hyacinth Blossoming Underground.—Mr. Smee of Wallington sent a specimen which, in consequence of being under a stone, had blossomed 6 inches below the soil. The leaves were quite white, but the flowers of a deep purple.

Telopea speciosissima.—Mr. Green exhibited a fine head of this scarlet-flowered Proteaceous plant from Australia. It is common about Sydney, but much less fine than the specimen exhibited. It was first figured in 1808, but has rarely flowered in this country. A botanical certificate was awarded it. He also exhibited a fine specimen of the Monkey Orchis from Italy. A vote of thanks was accorded to Mr. Green.

At the lecture in the afternoon the Rev. J. Henslow described the Rhododendrons and other plants brought before the Scientific Committee.

ODONTOGLOSSUM LEEANUM.

A VERY beautiful and distinct *Odontoglossum* bearing the above name was exhibited at Kensington on March 28th, and the following day at the Royal Botanic Society's Show by the introducers, Messrs. J. Veitch & Sons, Chelsea, and at each Exhibition it was honoured with a certificate. The plant shown is considered to be the only specimen in this country, and it has been transferred from



Fig. 61.—ODONTOGLOSSUM LEEANUM.

in the north, the Bluebells of Scotland being famous. It will not flourish except on a dry or a well-drained spot, and for this reason it prefers hillsides and banks. It likes to grow through the crevices of stone-facing walls and in the fissures of perpendicular rocks, and is common to the very summit of the highest Welsh mountains. Few plants are better adapted for cultivation on dry banks or the higher parts of sunny rockeries, and as it does not spread fast or overgrow its neighbours, it is well worth a place.

The many varieties both in the form and in the size of the bell are remarkable, their peculiarities of flower being constant when the plants are transferred to cultivation. Every degree may be found, from a nearly flat saucer-shaped bell to a long narrow bell more contracted at the mouth than at the base. The size also varies as much as the shape, the largest I have ever seen being, I think, those which grow on the perpendicular sides of the rocks at the Little Orme's Head. There are also many shades of colour; in fact, every shade from dark blue to the purest white. Many plants having blue flowers or purple flowers produce white varieties. If the type is blue, the intermediate shades pass through lavender and mauve; but if purple, then they pass through rose-colour or light red. To those who understand the composition of colours the reason for this is obvious. I never saw a rose-coloured Harebell, though the Canterbury Bell, being more purple than blue, passes into rose-colour when the colouring matter is deficient.

Chelsea to the fine collection of Orchids at Downside, Leatherhead, in honour of the proprietor of which (W. Lee, Esq.) this *Odontoglossum* has been named.

In the colour and markings of the flower it is suggestive of the new species *O. excellens* in the possession of Sir Trevor Lawrence, Bart., but the form of the flower and the size of the dots render it quite distinct. The sepals and petals are spreading and wavy, of a bright pale yellow colour, with numerous small rich chocolate spots. The lip is lighter than the body colour of the flower, somewhat triangular in form, long, and has a few blotches slightly larger than those in the sepals and petals. The flowers are borne in short racemes, the habit of the plant being very neat and compact. In our engraving an outline reduced sketch showing the habit of the plant is given, with a single flower of the full size.

HAREBELLS.

THE common wild Harebell (*Campanula rotundifolia*) is one of the prettiest of a very beautiful class of plants. It is represented in the mountains of central and southern Europe by several closely allied varieties or species of which I shall speak presently. The British Harebell is common throughout the island, but especially



Many Veronicas, the common Self-heal, the purple Mullein (*Verbascum phoeniceum*), and some others do the same, but there is no tinge of red in any of the varieties of the Harebell. The pure white form is common on the banks here, and a very beautiful flower it is.

Nursery catalogues contain altogether about a dozen names of Campanulas which the gardener may fairly class together as Harebells. Some of them are more robust and less particular about a dry situation than the British form, and for some the botanist may claim characteristics distinguishing them as species; but after collecting all I have been able, I am at a loss what line of distinction to adopt. If we are rightly told that the Gigantic Self-heals (*Prunella grandiflora*), which come to us from the south are only local enlargements of our native species, we need not make any difficulty about difference of size in the Harebells.

In giving the names, I give them as they came to me, mostly from well-known nurserymen, and I am not further responsible for them. We have *Campanula Hostii*, both blue and white, a stiff-growing strong form, but in other respects similar to our own Harebell. We have *C. azurca*, sometimes sold as *C. alpina* (the true *C. alpina* being very distinct), and *C. rhomboidea* or *rhomboidalis*, and *C. tenella*. These three seem alike. They are much taller and more leafy and have much thicker stalks than our form, but have a connecting link with it in a plant which I bought from Mr. Ware as *C. rotundifolia major*, which resembles them in nearly

every respect except size, and which I have always thought to be rightly named. Of these four I have never seen any white or intermediate variety in colour; they are all dark blue, but white probably will be raised some day.

The varieties I have mentioned are all larger and more robust than the type. I now come to some which are smaller. The most remarkable of them is generally known in England as *C. soldanellæflora*; in Germany and Switzerland it is sold as *C. Scheuchzeri*. It has what is called a duplex corolla, a peculiarity common to many of the genus. One bell fits inside another so closely that every part is in contact, but it fits in such a way that the five points of the inner bell coincide with the five interstices of the outer bell, giving the flower an elegant fringe of ten points, resembling the flower of a *Soldanella*. The effect is very good, and this is perhaps the only variety which surpasses the type of the species in beauty. Another variety I saw last July in the garden of the late Mr. Joad at Wimbledon. It was called *C. Tommasiana*, and with long narrow tubular bells very small at the aperture. I have been unable to meet with it in any catalogue. A more common and very useful plant for rockeries passes under the name of *C. linifolia*. It is compact and very floriferous, and increases fast without spreading too much. I need not say much of the old-established and well-known dwarf Harebell, *C. caespitosa* alias *C. pusilla*, and I think I may add alias *C. pusilla*; for though I have seen it stated that *C. pusilla* has characteristics of its own, I have never met with anything under the name that has seemed distinct. Nurserymen sell them in three colours, those I have mentioned as marking the type *C. rotundifolia*. The only objection to this plant is the insidious habit of extension underground, which makes it a nuisance.

C. pulla must, I think, be included in this class. It has, perhaps, more right to be considered distinct than any I have yet mentioned, all the others being more or less evergreen. I have two shades of colour in *C. pulla*, but have never seen or heard of a white form. If the above-mentioned plants were more popular and often grown from seed, we should probably not only get white varieties and double varieties of all of them, but a series might soon be formed connecting them all. I forgot to say that a *C. rotundifolia* flore pleno figures in many catalogues, and after many fruitless attempts to obtain it I have at last received it from Germany, though I suspect it may prove only a "duplex" form. I am far from believing that what I have mentioned form a complete list either of names or varieties in this class of Campanulas, but they are all I have been able to see in three years' collecting.—C. WOLLEY DOD, *Edge Hall, Malpas.*

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THE Spring Exhibition of this flourishing Society was held on Wednesday the 5th and Thursday the 6th insts. in the Waverley Market, Edinburgh, when a large and attractive display of garden produce was brought together under very different conditions with regard to weather than had been experienced for the last two or three years. The Exhibition was largely attended by Scotch gardeners, and the general public patronised it in large numbers. The competition was generally keen, as many as nine collections being staged in several classes, and in the greater number of the classes at least three and four were entered.

Hyacinths were only sparingly represented, but were fairly good in quality. The first prize in the nurserymen's class for eighteen was awarded to Messrs. Downie & Laird, the only exhibitors. In the gardeners' classes the first prize for twelve went to Mr. R. M. Reid, Ravenswood; Mr. G. McLure, gardener to J. Milne, Esq., Trinity, being second, and Mr. J. McMunnish, gardener to Major Nimmo, Falkirk, third. For nine specimens the first prize was secured by Mr. J. Pearson, gardener to Lady Lucy Dundas, Beechwood; for six by Mr. A. Dunlop, gardener to Lady Oswald, South Bank. In the amateurs' class for six Mr. R. Stewart, Haddington, was placed first. Polyanthus, Narcissus, Tulips, and miscellaneous collections of bulbs were all good. In the class for four Rhododendrons Mr. R. M. Reid took first honours with well-grown plants. Azaleas were exceedingly good. The plants were formally trained and flowering profusely. For one plant Mr. A. Paul, Gilmore Place, was first; Mr. J. Patterson, gardener to J. Syme, Esq., Millbank, second; and Mr. J. Cunningham, Blackford Brae, third. For two and four varieties Messrs. Patterson and Paul took first and second prizes in the order named. For three plants in pots not exceeding 9 inches in diameter—a very good class—Mr. Patterson was again placed first, and Mr. John Fowler, gardener to R. Paterson, Esq., Grange Road, being second. Greenhouse and stove plants were noteworthy, Messrs. Patterson and Paul being awarded equal first prizes, the former's plants being much smaller than those of his opponent but fresher.

For a table of plants 20 feet long by 5 feet wide only two exhibitors entered; that from Mr. Paul, and to which the first prize was awarded, containing a fine collection of Orchids in bloom with other plants. Noteworthy among the Orchids was a plant of *Phalænopsis*

Luddemanniana with over twelve spikes, *Dendrobium thyrsiflorum* Dawsonianum, several *Cattleyas*, and a number of *Phalænopsis amabilis*. Mr. R. Grossart was the other exhibitor, and to his arrangement the second prize was awarded. Mr. W. Begg, gardener to Mrs. Fergusson, Wardie Lodge, Trinity, was first in the class for a table of hardy spring-flowering plants, comprising numerous *Primulas*, *Saxifragas*, *Fritillarias*, &c.

The classes for Orchids were well filled, some uncommonly good specimens being staged. The first prize for four plants went to Mr. A. Gow, gardener to W. MacDonald, Esq., Woodlands, Perth; his collection comprising a fine example of *Dendrobium densiflorum* with thirty spikes, and handsome plants of *D. nobile*, *Phalænopsis Schilleriana*, and *Odontoglossum Alexandræ superbum*. Mr. Paul was a close second with fine plants of *Cypripedium villosum*, *Oncidium serratum* with over five dozen flowers, *Dendrobium densiflorum*, and *Calanthe veratrifolia* with ten spikes. For two Orchids Mr. Patterson was first, and Mr. Priest, gardener to the Marquis of Lothian, Newbattle Abbey, second. A fine example of *Dendrobium Dalhousianum* with one fully developed spike and two unopened, was conspicuous in this class. For one plant Mr. McIntyre, gardener to C. Tennant, Esq., M.P., The Glen, Innerleithen, was first with a small specimen of *Odontoglossum Pescatorei*—a good variety. Ferns were not particularly good except in the case of the first-prize collections. These in the class for six from Mr. S. Gordon, gardener to H. Rose, Esq., Kilaverock, were creditable. For three *Gleichenias* there was only one competitor—Mr. Paul, who was deservedly awarded the first prize.

Deutzias were present in numbers, and were superbly flowered. Spiræas and Dielytras were abundant and good. There was an exceedingly fine group of Mignonette shown, Miles' Spiral being decidedly the best. Roses in pots were good. For four Mr. Patterson was placed first with healthy well-flowered examples; Mr. Gordon, gardener to Major Wauchope, Niddrie, being second with much larger but less healthy plants. Mr. Patterson also took first honours for two plants; Mr. W. Penn, Greenpark, being second. Mr. Gordon secured first prize for twelve Cyclamens with healthy examples having large blooms. Several collections of stage Auriculas were shown in fair condition considering the earliness of the Show for these. Mr. R. P. Brotherston, gardener to the Earl of Haddington, Tynninghame, was first for these with good examples of Pizarro, Imperator, Ann Smith, Headley's Geo. Lightbody, Col. Champneys, and Ringleader; these had from eight to fourteen pips in a truss, the plants being in pots 3 and 4 inches in diameter. Mr. Black, East Calder, was second with plants which will be much better a week hence. Mr. D. Forrester, Woodcockdale, Polmont, was placed first for six alpine plants—namely, *Primula rosea*, *P. viscosa nivea*, *P. cortusoides amœna*, *P. verticillata*, *Trillium grandiflorum*, and *Narcissus bulbocodium*.

In the classes devoted to nurserymen Messrs. Downie & Laird were first for twelve hardy Rhododendrons with very large specimens. These formed the most telling feature in the Exhibition. The finest of the plants were Broughtoni, John Downie, Mrs. Clutton, Lady Clarke, Iago, and Regalia. Messrs. Methven & Sons were second with specimens of ordinary size. Messrs. Downie & Laird were also first with six greenhouse Rhododendrons, amongst which the fragrant Duchess of Buccleuch was noticeable. For six pot Roses Mr. C. Wilson, nurseryman, Kendal, Westmoreland, was first. For Tree Ferns and plants for table decoration Messrs. Methven & Sons gained the chief position. In addition to prizes already noted Messrs. Downie & Laird also won the premier prizes for twelve Cyclamens and six Alpine Auriculas.

Cut flowers were not largely shown. For twenty-four cut Roses Mr. Gordon was the only competitor, and was awarded first prize. For twelve Mr. Gordon was again first, and Mr. Bowman, gardener to Lord Deas, Pittendriech, Dunfermline, second. For twelve *Maréchal Niel* Roses Mr. Pearson was placed first with fine blooms lighter in colour than most of the others, the result, it is said, of budding on the white Banksian stock. The second-prize blooms from Ross Harvey, Esq., were very rich in colour. Many bouquets were staged, but were generally too crowded.

The fruit classes were not numerous but pretty well filled. For one Pinc Apple Mr. Johnston, gardener to the Earl of Strathmore, Glamis Castle, Forfar, was first with a fine Smooth Cayenne; Mr. McIntyre being second with a fine fruit of the same variety, but rather *passée*. For thirty Strawberries Mr. Dow, gardener to Sir David Baird, Bart., Newbyth, Prestonkirk, was first, and Mr. Johnston second. For two bunches black Grapes Mr. Watson was first with well-kept examples of Lady Downe's; Mr. Anderson, gardener to the Earl of Stair, Oxenford Castle, was second with the same variety; and Mr. Murray, gardener to the Marquis of Ailsa, Culzean, Ayrshire, third with a good example of Black Alicante. Only one exhibitor staged white Grapes, these being examples of new Buckland Sweetwater from Mr. J. McAll, Woodlands, Stirling. For twelve Apples dessert varieties, twelve Apples kitchen varieties, and twelve Pears, Mr. Brunton, gardener to Sir Alexander Kinlock, Bart., Gilmerton, Drem, was first in each class with well-kept fruit. A silver medal was awarded to the same exhibitor for a collection of thirty sorts of Apples and Pears.

The vegetable classes were fairly well filled, the produce in some instances being of excellent quality. For a collection of eight sorts Mr. Gordon, Niddrie, secured the premier position with an excellent collection, comprising excellent Broccoli, Mushrooms, Seakale, good

Peas, fair Potatoes, Asparagus, and Carrots. Mr. Potter, gardener to Mrs. Laidlay, Seacliffe, North Berwick, was a close second. For three Broccolis Mr. Paterson secured first place with extra good produce; Mr. Potter being second, the variety in both cases being Gordon's Niddric Late Protecting. For six Leeks Mr. James Forrest, Tynninghame, Prestonkirk, was first with large and fine samples. For a collection of salads Mr. R. Ferguson was first with a full collection. This exhibitor also secured a first prize for a fresh brace of Telegraph Cucumbers.

Extra prizes were awarded to Mr. R. McFarlane, market gardener, East Linton, for a table of plants, conspicuous in which were some well-grown Ferns, Auriculas, Azaleas, *Primula viscosa* in quantity, the old double crimson Primrose and others, two dozen blooms Camellias, two dozen boxes of fine *Pelargonium* trusses, and a bouquet of fine Orchids; Messrs. Gordon & Sons, Coltbridge, for a bright arrangement in which decorative *Pelargoniums* predominated, the front of the table being edged with *Primula viscosa nivea*; to Mr. Taylor, Hermitage, Leith, for fine plants of *Spiraea japonica*, Azaleas, and Lily of the Valley; to Mr. Robertson Munro for table of hardy plants; to Mr. G. Sinclair, East Linton, for a mixed collection of Primroses in great variety and other spring flowers; and to Dr. Paterson, Bridge of Allan, a cultural commendation was awarded for a basket of Orchids.

Messrs. Ireland & Thomson had a large table of flowering plants, comprising several large specimens of loosely trained Azaleas, small Palms, *Anthurium Andreanum*, several good Orchids, and many other useful plants. Amongst them were the new white hybrid *Rhododendron Thomsoni* and flowers of a seedling *Abutilon*, bright yellow in colour, the plant being dwarf and floriferous. Mr. Muir, gardener at Margam Park, South Wales, was the raiser, and Messrs. Ireland & Thomson intend distributing the plant during the present spring. It is named Waverley. Messrs. Dickson & Co. had a large table of Cinerarias, fair in quality but unequally grown. Messrs. Drummond Bros. showed beautiful wedding bouquets, a floral cross, and a pretty wreath. The Lawson Seed and Nursery Company grouped some graceful foliage plants amongst Lilies of the Nile and *Spiræas*, edged with *Aralia Sieboldi*. Messrs. Downie & Laird contributed a group of Azaleas, which were even more effective than the plants in competition.

REVIEW OF BOOK.

Easter Ardross Experimental Station: Report for 1880-81. By J. MACDONALD CAMERON.

ONE of the most curious, and at the same time valuable, facts established by chemistry is that certain families of plants have different requirements in the matter of plant food. The Leguminosæ and Solanaceæ delight in carbonate of potash, Onions and Leeks in potash and sulphuric acid, and most members of the Cruciferae in phosphates. These, however, are only general truths with which advanced cultivators and chemists are not satisfied. In the spirit of further inquiry great numbers of experiments have been made in America, on the Continent, and in this country in order to ascertain the effects of different compounds on different plants in different situations. The report before us bearing the above title is an account of a scientific attempt to ascertain the relative effects of soluble and insoluble phosphates on the Turnip. The report is most elaborate, and it is impossible for us, in the space at our command, to follow Mr. Cameron into the minute details so carefully given. We shall, therefore, merely point out the more prominent features of it, as just now the country seems awakening to the importance of such experiments.

Although it is quite settled that the Turnip crop is specially benefited by phosphates, it is a moot point whether it is more profitable to apply these dissolved or undissolved. Some years ago the Aberdeenshire Agricultural Association instituted a series of experiments with a view to settling the question. We have seen no report of that Association since that in 1877 appeared, but the results of the experiments made by it were succinctly summed in the following words, which we quote from a contemporary.

"The experiments of this and preceding seasons show that the Turnip crop is decidedly benefited by phosphates of lime, whether of animal or mineral origin, but that there is no great difference as regards effect between soluble and insoluble phosphates; that nitrogenous manures alone have little effect on Turnips, but when combined with insoluble phosphates they increase the crop; that if combined with soluble phosphates the increase is not noted; that it is immaterial whether nitrate of soda or sulphate of ammonia be used to supply the requisite nitrogen; that fineness of division of the phosphatic manure seems nearly as effective in assisting the braid and increasing the crop as the addition of nitrogenous manures. Insoluble phosphates ground to an impalpable powder are therefore the most economical manure for Turnips. The results of the experiments made in 1877 confirm those of 1876. Soluble phosphates have the advantage over the insoluble ones of greater distributive powers and greater assistance to the braid. The application of nitrogenous manures to Turnips is shown to increase the proportion of water to the detriment of the solid nourishment. Soluble phosphates have a tendency to decrease, insoluble ones to increase, the albuminoid or flesh-forming matter; the decrease in albuminoids caused by the

soluble phosphates is accompanied by an increase of sugar, usually regarded as a heat-producer and fat-former."

We have been induced to make the above rather lengthy quotation, for the experiments were made, partly at least, with a view to testing the results obtained by the Aberdeenshire Association, and because the results are in some instances, different.

In the experiments at Easter Ardross, phosphates in the form of ground coprolite, bone ash, and bone powder were used. The nitrogen was furnished by sulphate of ammonia, nitrate of soda, and rape dust. For a basis of comparison some plots were dressed with the mineral manures alone, two were unmanured, and two manured with "Fimus." In all cases the amount of phosphoric anhydride was the same, and the amount of nitrogen the same, except in the case of the "Fimus," which, being rich in nitrogen, was applied in one instance in quantity, affording an equal amount of nitrogen with the others, thus causing the plot so dressed to have only half the amount of phosphoric anhydride as the other plots. Another plot to which the "Fimus" was applied in quantity sufficient to provide an equal amount of phosphoric anhydride had, in consequence, an excess of nitrogen.

The land having been prepared, the manure carefully applied, and the Turnip seed sown, the results were carefully noted from time to time. Five weeks after sowing time the plants on the ground dressed with the dissolved manure had shot ahead of the others. Curiously, however, the plots dressed with rape dust in addition seem to have, at this stage, lagged behind even those dressed with dissolved coprolite, dissolved bone ash, and bone powder alone. Those dressed with Fimus were then most advanced of all. A week later this was even more marked. In the earlier stages the plots that had the nitrogen applied in the form of sulphate of ammonia seem to have had the best of it, and to have held their own all along.

Space forbids us entering more deeply on the subject, but we quote the following from the final results. These show the superiority of dissolved over undissolved phosphates, at least in this instance. We agree with Mr. Cameron in saying that what may be a reliable guide in one district may not be so in another, and that it will be a happy day for our agriculture when experimental stations are established in every county.

In the unmanured sections the crop was at the rate of 8 tons 10 cwt. per acre; from the whole undissolved series 15 tons 3½ cwt., or 78½ per cent. of an increase. The dissolved series gain a crop at the rate of 20 tons 18½ cwt. per acre, or an increase of 146 per cent. over the unmanured portion. The plot dressed with Fimus in quantities sufficient to afford the same nitrogen as the other plots, but with only the half of the phosphoric anhydride, gave 22 tons 13½ cwt., or an increase over the unmanured plots of 166½ per cent.; the other Fimus plot—with an equal amount of phosphoric anhydride, but an excess of nitrogen—gave 26 tons 13½ cwt., or an increase of 213½ per cent. over the unmanured portion.

In examining some of the details, we notice that the largest crops next to that given by the Fimus plots were produced by dissolved bone ash and nitrate of soda. It was at the rate of 24 tons 10 cwt. The plots dressed with dissolved coprolite and sulphate of ammonia approached it very closely, however, yielding a crop at the rate of 24 tons 6½ cwt. The largest crop given by the undissolved series came from the plots dressed with ground coprolite and sulphate of ammonia. In this series the sulphate of ammonia showed better results than the nitrate of soda, though coupled with the same phosphates.

These experiments are very interesting and very valuable. Every scientific experiment on original grounds tends to let in more light on a subject of which we know much, and yet are very ignorant. Interesting as they are, they are by no means conclusive. It is only when large bodies of such facts shall have been accumulated that a sound foundation on which to rely shall be laid. We welcome all additions such as this to the general store, and it augurs well for the future of our country to find private gentlemen such as Mr. Kenneth Mathieson, the establisher of this station, giving their means and their leisure to ascertain facts that must, by-and-by, enable us to realise our national assets. It augurs well when enthusiasts in their profession devote their best efforts to the elucidation of truth in this direction. So far as it goes the work seems to have been well done. Other countries have regularly endowed agricultural stations, but only in Great Britain are such men to be found as our Lawes, our Gilberts, our Churchs, Johnstons, Mathiesons and Camerons. It is a pity that we have no Minister of Agriculture, no regularly endowed agricultural schools, no Government experimental stations; but what other governments have done well elsewhere, private gentlemen have done better here. May the outcome and the end be the establishment of our agriculture on a basis so firm that no foreign competition can either shake or harass it.

Our readers may wonder what Fimus is. It is an ammoniacal phosphate of magnesia manufactured from sewage by "Scott's process." Whether the particularly favourable results noted above depend upon the magnesia associated with the phosphoric anhydride and ammonia, or to the other matters it contains, has not been ascertained; but for Turnips and other Cruciferous crops it seems an excellent manure, and well worthy of a trial by those who have a difficulty in procuring ordinary manure in sufficient quantities.

The following is a copy of the analysis of "Fimus" by J. Macdonald Cameron.

FIMUS.

Water	15.43
*Organic matter and water of combination	41.17
†Phosphoric anhydride	7.86
Carbonic	1.70
Silicic	6.57
Sulphuric	7.81
Chlorine	0.14
Calcic oxide (Lime)	13.28
Magnesian „ (Magnesia)	3.48
Potassic „ (Potash)	0.44
Sodic „ (Soda)	0.56
Ferric „ (Iron rust)	0.76
Aluminic „ (Alumina)	0.80
	100.00
* { Containing Nitrogen	2.14
{ Equal to Ammonia	2.60
† { Monobasic or soluble phosphate	4.62
{ Equal to Tribasic	6.12
{ As Tribasic	11.04
Total Tribasic phosphate	17.16

HONG KONG.

(Continued from page 381 last volume.)

IN the Botanic Garden is a plot containing upwards of fifty species of Palms in excellent condition, growing side by side with a collection of Conifers, consisting of Araucarias, Thujas from Japan, Podocarpaceae, Cyprresses, Taxodiums, Dammaras, Frenelas, and Cyprresses, all apparently quite at home. Mexico is also represented fairly well in Cacti, which grow very rapidly and are perfectly contented with their Chinese home.

Gardening by the natives is only carried on to a very limited extent. They grow different kinds of European vegetables in the cold season for the market, and some for their own use. The Chinese are great vegetable-consumers, and immense quantities of these arrive daily in Hong Kong from the mainland, a large quantity of which is grown in British Kowloon. Fruit for the Hong Kong market comes chiefly from near Canton, and consists of Bananas, Litchis, Largons, Persimmons, Carambolas, Peaches, Pine Apples to a small extent, Pamelos, Oranges, Custard Apples, Mangos, Wampees, Rose Apples, Kumquats, &c. The best Mangos come from Manila, and Pine Apples and Mangosteens from Singapore and Bargpok, and Pamelos from Amoy and Swatow. Grapes are grown near Tientsin and Newchwang in the north, and are sent to Hong Kong; but the best Chinese Grapes are very inferior to English-grown ones, they are almost entirely devoid of the rich Grape flavour to which we are accustomed in England. Pears are grown on the opposite coast to Hong Kong, in places to a large size, and they are very good stewed; but though used as a dessert fruit, they would find no place on an English table, as in reality a good Turnip tastes better. Spongy Apples arrive from the north, but the best of all come from America.

Of all the fruits mentioned above by Mr. Ford I have tasted almost all. With the exception of the Durien of Borneo, which I have not had either the misfortune of smelling or the felicity of eating, they comprise most of what are reputed to be the finest tropical fruits; and I have no hesitation in saying, that in the opinion of a newly-arrived European, excepting, perhaps, the Pine Apple and the Mangosteen, they are not to be compared with either the Strawberry, the Cherry, the Grape, the Red Currant, the Fig, or the Pear. After the Pine Apple and the Mangosteen come, I think, the Persimmon and the Litchi, though some prefer the Mango and the Banana. The Custard Apple is too gritty and sickly-sweet to be agreeable in large quantities. The Singapore Pine Apple, especially when purchased fresh upon the spot, is one of the kings of fruits, and the flavour of an English hothouse specimen does not give the faintest idea of that which it possesses in its native habitat. The Mangosteen is the size of a small Pomegranate or medium-size Apple, and on its dark greenish rind being cut open shows a circular mass of white viscous pulp somewhat similar to a mixture of snow, cream, butter, and lemon, in which are the seeds, the whole lying in a sort of spongy bed, from which it must be extracted in order to be eaten. In flavour it is acidulous, soft, and melting. The Mango is a green, oblate-oval, flat fruit, varying from 4 to 6 inches in length, with a narrow yellowish flesh lying between the rind and a large stone, which corresponds in outline to the exterior, but clinging so firmly to its flesh as to make the elegant handling of it almost impossible. The only way is to scrape off the flesh as it lies on your plate in the most successful manner you can. The taste for the Mango is, in my opinion, a more acquired one than that for any of the other fruits here mentioned, and impossible to describe. The ripe Litchi is about the size of a small Plum, with a greenish-brown shell,

which upon being broken or torn off shows a white, opaque, fleshy sort of substance, of sweetish taste and rather juicy, enfolding a brown stone. Unlike the Mango it is a very easily eaten fruit, and though not having such a peculiar flavour, yet does not pall upon the palate. When dried they very much resemble raisins without the raisin flavour. The Persimmon is by no means unlike the Tomato, but has its skin of a paler orange colour and uniformly distended. It is of the same colour throughout, with but few seeds and small, very pulpy, sweetish, and refreshing. On the whole it may be said of tropical fruits that they are suited to the climes in which they grow, and to be appreciated ought to be eaten there during a period of residence extending over many years, when the palate will become capable of distinguishing the delicate differences that exist between them. I doubt whether in the moist heat of the tropical mornings the less juicy fruits of the temperate zone would after a while seem so refreshing as those grown in a tropical habitat.—TRAVELLER.

GARDEN LABELS.

I SEND a description of an exceedingly simple form of label that I have observed in use in the Blair Drummond grounds, and which seems to me quite sufficient. It is employed in naming shrubs and the rarer forms of trees, and in the fernery, for which it appears particularly well adapted, the form being of course longer or of a squarer shape to suit the name. It is the simple way in which the wire is inserted that strikes me as being superior to the more complicated arrangements of those that have been shown in the Journal. The bending of a wire sufficiently strong and serviceable in small tallies is troublesome, and I think it is quite unnecessary. The wire employed at Blair Drummond is a

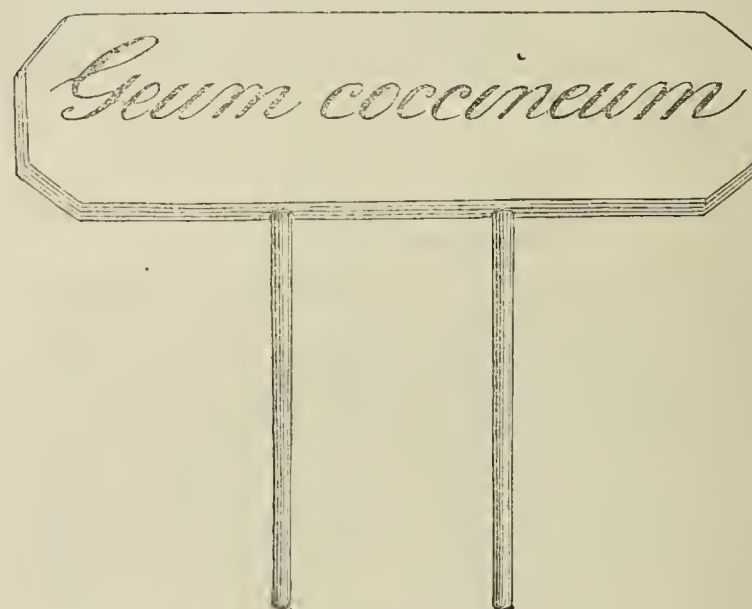


Fig. 62.

smaller or a thicker kind of that used in wire fencing, according to the thickness of the wood used, which varies from a quarter to three-eighths, or in some cases, half an inch. A hole a trifle smaller than the diameter of the wire is bored in the lower edge of the labels, and the wire driven a little into the wood. If desired, a slight bend at the neck will give a quarter or less inclination as may be desired. I know that these labels have stood unrenewed for considerably over twelve years. The wood seems to be generally common pine, heavily smeared with white paint. I mean to begin immediately to make such for my Phloxes and herbaceous plants, and to alter what I now have of the common form in use by inserting the wire as indicated. After that long time the tallies I inspected last night are perfectly good, and appear likely to remain so for years to come, both in the wood and the firmness with which they remain fixed to the wire. The latter varies in length according to the soil, &c., in which it is inserted. It is the simplicity of the mode of attachment to which I would draw attention. Form and size can be made to suit the individual taste.—A NORTHERN AMATEUR.

I ENCLOSE a pattern of one I use (fig. 62). I find them good and permanent. I generally have the legs about 6 inches long according to size of labels. I think the two wires have an advantage over one, at least for outdoor work, as when there is but one wire the wind turns them about like a weathercock, but no amount of wind will affect them with two legs in the ground; besides, you have the advantage of having the name straight before you for

reading off at once. These are, I may say, everlasting. The one I send has been in use for years. I make them myself. I merely send this in case it may be of any use to you, as I would prefer it to those you have illustrated.—F. J., *Cork*.

MILD WINTERS.

THE past winter is likely to be as remarkable for mildness as the one preceding it was for continuous cold and snowstorms. Till this date there has been nothing like real wintry weather. It was recently stated by the Curator of the Edinburgh Botanic Garden that "this was the most remarkable season he had ever had anything to do with;" it was, in fact, a year of continuous growth. In November there was almost a total absence of frost. In December the thermometer was at or below the freezing point on sixteen different occasions, but the frost was never so severe as seriously to check vegetation. Thus it happened that on November 30th it was reported from the banks of the Clyde that Gooseberries of a fair size had been plucked in sundry gardens, and from another district that birds were building their nests, Gooseberry bushes were in blossom, and the gardens were adorned with many-tinted flowers. On the last day of 1881 a bouquet was gathered in the open air at East Linton, and two days later there were fifty varieties and species of plants in flower in the open air at the Botanic Garden. In the present case a mild winter has immediately followed one of unusual severity, and it might be worth while to inquire if there be any rule in this matter. A conspicuous instance occurred in the cases of the years 1795 and 1796. The month of January, 1795, was very severe, and the rigour of the season altogether was unusual. It was predicted by Dr. Herschel that the frost which began in January would continue thirteen weeks, which it actually did. The maximum reading of the thermometer near London in January, 1796, was 55°, the minimum 38°, and the mean 47·5°, so that during the whole month the thermometer never came nearer the freezing point than 6°. It is related under date January 9th of that year that "there is in an orchard belonging to Mr. Hodge, of the parish of Ashford, near Barnstaple, an Apple tree with blossoms in full perfection, and another tree with the Apples set." In the middle of the same month a Pear tree, with fruit fully formed, was to be seen at Kirkintilloch, and a bird's nest of the finch tribe was found in a hedge on the farm of Cornhill, with its full complement of eggs. New Potatoes, many of them 7 inches in circumference, were lifted in the middle of February from a garden near Whitehaven. They had been planted about the middle of November. That winter was like the present—conspicuous for violent gales, and from January 23rd to 29th was very stormy, with prodigious falls of rain, and a good deal of thunder and lightning. The year 1787 was remarkable for a mild winter and early spring. On February 2nd Primroses were in full bloom, and at Carlisle a Cherry tree was reported to be in blossom. Several of the buds had burst so early as the middle of January. On February 17th a linnet's nest with three eggs was discovered at Limehouse Bay, a mile from Glasgow. At Hendersyde, in Roxburghshire, Cauliflowers planted in the open air were in full flower, and ready for use on February 24th. About the 20th of the month a thermometer on a wall facing northward near the banks of the Tweed stood for days at 53°, and before the month closed it was at 55°. It was generally remarked that the mildness was unprecedented in the experience of any person then living. Spring corn was nearly all sown in the first week of March. On the 16th of the same month a tenant of Sir William Cunningham, of Livingstone, began to cut Clover and Ryegrass for his cattle, and the grass measured 18 inches long. Garden flowers were premature in their blooming, and all crops were early. On April 3rd a large dish of new Potatoes, grown without any artificial aid, was presented by the Deacon of the Gardeners at Glasgow to a friendly meeting of the Fourteen Incorporated Trades of that city. East winds in spring injured the fruit crop, but the crops of Wheat, Barley, and Oats all over the kingdom were among the best that anyone could recollect. The truth is, we live in a variable climate, and a wide range of observation discloses many mild winters both in recent and more remote times. Of the year 1652 it is related that "in England there was such abundance of white butterflies as was never heard of before. They destroyed all Cabbage, and divers cobbles coming from the sea could hardly see the land for them." The uncommon heat "produced ripe wine-berries and Grapes, and abundance of Scotch Chestaries openly sauld at the mercat-cross of Edinburgh, and baked in pasties at banquets." The same kind of weather continued during the later months of the year, so that fruit trees blossomed in November, and some of them bare fruit, "albeit not in perfection." "The Furze and Broom bloomed again; the Violet, not due till March, presented its modest head in November; birds began to build their nests and lay eggs at or near Martinmas; and salads and Sybows (young Onions) were cried and sold in Edinburgh on November 27th." The year 1653 seems to have been unexampled of its kind. From October till the following March the weather was so dry and warm as to seem like a second summer, and during all that time there were "not more than six showers of wet or snow." The following summer was exceedingly fine and early, with great abundance of food. Peas and Cherries were ripe in the beginning of June, the harvest was early, and so abundant that oatmeal sold at fourpence sterling a peck. Lambs and fowls were exceedingly cheap, and herrings on the west coast were sold at twopence a hundred. In the western counties the summer was rainy,

but on the east side of the island the drought was such that the well to which the city of Edinburgh depended for water ran dry, "sae tha the inhabitants could not get sufficient for ordering their meat."—(*Scotsman*.)



KITCHEN GARDEN.

No time should be lost in sowing the main crops of the Brassica tribe—such as Borecoles, Savoy, and Broccolis, also Cabbage for autumn use. The principal crop of Carrots, Beet, Salsafy, and Scorzonera, &c., must be also sown at an early period. If the ground is infested with slugs a good dressing of fresh slaked lime may be applied to the ground previous to drawing the drills. A good breadth of early Turnips may be sown to succeed those first sown, which seldom stand long at this early season. Successional sowings of Lettuce, Radishes, and Spinach must be made at intervals proportionate to the demand. According to the probable demand make sowings of Peas, which from this time forward in unfavourable soils—light and shallow—should be sown over trenches prepared similarly to those for Celery, but filled or nearly so. The manure and deeper soil assist in supplying the necessary degree of moisture at the roots in dry weather. Broad Beans should be sown according to the requirements of the establishment.

If a warm south border is vacant it will be a suitable place for a sowing of Dwarf Kidney or French Beans, which should now be made; Osborn's Forcing and Canadian Wonder are admirable varieties. As the rows of recently sown seeds, such as Onions, Carrots, &c., become visible take advantage of the first favourable opportunity to hoe lightly between them, which will save much after trouble by destroying weeds which are scarcely visible. Crops in seed beds must be attended to frequently, and where slugs abound dust the plants in late evening or early morning with quicklime or dry wood ashes, which are equally effectual against the fly attacking seedling Turnips and the Brassica tribe generally.

Certain kinds of hardy herbs are constantly in request in most establishments, and such as Thyme, Marjoram, Sage, Tarragon, &c., should now be divided, and planted in rows about 18 inches apart, choosing a moderately warm position; and a change of soil, it is needless to point out, is highly beneficial. Seeds of Thyme, Sage, Winter Savory, and Chervil should also be sown, and in a short time seed of Sweet Marjoram, Basil, and Summer Savory, also the seeds of other kinds of herbs which are not so generally cultivated should be sown now, and those which are increased by cuttings or division of the roots can be attended to if necessary.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house the fruit has stoned, and the early varieties are well advanced in their last swelling. If the crop is likely to be heavy give such a thinning as will insure the swelling of the fruit retained, and at the same time give the inside border a thorough supply of tepid water or weak liquid manure, attending to this regularly once a week until the fruit is ripening, when it should be kept somewhat drier, mulching the border if not already done with 2 or 3 inches thickness of short manure. Syringe the trees once or twice daily with clear rain water until ripening commences, then discontinue it, but maintain a genial atmosphere by damping the floor and border. The night temperature may be maintained at 65° to 70°, and 70° to 75° by day artificially, advancing to 80°, 85°, or 90° from sun heat; but unless the ripening is desired to be accelerated a cooler course of treatment will be better for the trees; in fact although a high temperature and moist atmosphere will cause the fruit to swell to a large size, it is not nearly so good in flavour as that obtained by a less stimulating process. Keep the shoots tied in as necessary, and the laterals pinched to one leaf, removing all superfluous growths. Any not well placed on the shoots should be turned to the light and maintained there by laths placed

across and secured to the trellis. If there be any trace of red spider employ an insecticide at once.

In the house started early in the year the fruit will soon be stoning, and as this considerably taxes the energies of the trees, and is a cause of the fruit dropping during that process when the crop is too heavy, it will be advisable to examine the trees and remove the smallest of those in excess of the intended crop; and it may be mentioned that one fruit to every square foot of trellis covered by the trees is a sufficient crop to insure fruit of good size and quality. Attend to tying-in the young shoots as they advance, and regulate them so as not to be too crowded, as by giving the young shoots plenty of room the fruit attains better colour, and stronger and better ripened wood is secured for another season. During the stoning process the temperature by artificial means should not exceed 60° to 65°, and 70° to 75° from sun heat, ventilating freely upon all favourable occasions.

In succession and late houses the routine will be the disbudding and regulating the shoots, stopping those retained to attract the sap to the fruit at two or three joints of growth, and laterals to one leaf, tying-in when necessary, being careful not to do so too tightly. Keep all insect pests in check, fumigating upon the first appearance of aphides, and syringing daily. Mildew, if it appears, should be subdued by dusting the affected parts with flowers of sulphur. Lose no opportunity of ventilating freely, but avoid sudden fluctuations of temperature and cold draughts. See that there is no deficiency of moisture in the borders, giving when necessary thorough supplies of water, and assist weakly trees with liquid manure, or a little guano may be sprinkled on the borders and washed in.

Cherry House.—The roots of the trees being confined to the inside border, a good soaking of water should be given whenever any is necessary, and with the trees heavily laden with fruit, and not in a vigorous condition, liquid manure will be highly beneficial. If not already done there should not be any further delay in mulching the border with 2 or 3 inches thickness of short manure. Artificial heat will only be necessary to maintain a night temperature of 45° and 50° in the daytime, allowing 5° more when the weather is mild, ventilating freely above 50°. Keep a sharp look-out for grubs, and if aphides abound fumigate the house on two or three calm evenings, being careful to have the foliage dry. Do not allow the black aphides to obtain a hold on the young growths, or it will spoil the appearance of the Cherries when ripe. The trees should be syringed twice every day, and the surface of the borders kept constantly moist. As soon as the shoots have made four or five joints' growth, pinch out the points of all that are intended to form spurs, carefully heeling in at the base those required for furnishing the trees.

PLANT HOUSES.

Stove.—Amaryllises now making growth should be assisted with weak liquid manure, and although they do not require much root space, if kept too much cramped they do not make such strong growths as when more liberally treated, a 7-inch pot being suitable for the largest bulbs; and in potting the roots should be disturbed as little as possible, good yellow fibrous loam being most suitable. The plants must have a light position, so as to keep the foliage sturdy. In a too dry atmosphere, or if too dry at the roots, they are subject to red spider, and the leaves must be sponged with an insecticide.

Young plants of *Eucharis amazonica* should be shifted into larger pots as these become filled with roots, as the stronger the plants become the more freely they flower and the finer are the blooms. Plants in free growth should be assisted with liquid manure. Young *Gardenias* grown for next season's bloom should be kept clear of mealy bug and scale, every encouragement being given to secure a vigorous growth; and as they are best in small pots, say 8-inch, they should be shifted accordingly, being careful not to overpot, and to assist growth, when the roots have taken to the soil, with liquid manure.

Gloxinias producing their flowers should be kept near the glass. *Hoya bella* and *H. Paxtoni* advancing for flower should be placed at the driest part of the house, where they will remain in good condition much longer, and be more endurable for bouquets.

Palms are growing strongly, and must have plenty of water at the roots, or they will lose colour; and as they can be grown with less

root space than most plants of large size, they must never lack water at the roots, being kept free of insects and shaded.

Give plants of *Clerodendron fallax*, *C. fragrans*, and *C. Kämpferi* a light situation to keep them short-jointed and sturdy, and a moderately warm situation is needed. Turfy light loam with a little leaf soil suits them, and they must not be overpotted.

Cuttings of *Aphelandras*, *Allamandas*, *Æschynanthus*, *Gardenias*, *Hoyas*, *Ixoras*, *Hibiscus*, *Tabernæmontana*, &c., inserted some weeks back are rooted and must be at once potted singly, or if inserted in small pots they should be shifted into larger before they become much matted at the roots. Insert more cuttings of *Euphorbia jacquiniæflora*, potting off those previously struck into 3-inch pots, as these plants make fewer roots than most stove plants, and must never be overpotted. Remove the points of the shoots to induce them to produce several shoots. Turfy loam with a little well-decayed manure and a sixth of sand suits them. *Poinsettias* kept dry should now be cut back to a few inches from the pot, placing them in a growing temperature, where they will break preparatory to repotting or affording a batch of cuttings. *Ixoras* are showing their trusses of bloom, and any that are required to flower later than the usual time should be placed at the coolest end of the stove or in some other structure, but they must not be kept in a temperature much less than 5° from the temperature in which they have been growing, or the flowers are likely to fall.



BEE-KEEPING TO ADVANTAGE.

IT struck me when I read the wish of "J. B. S., *Warwickshire*," that I might help him by giving some of my experience, which will be no worse for having appeared in the "Belfast News Letter." The letter is a simple one, but I am sure it will be acceptable to the inexperienced. "J. B. S." is right when he says that many articles are above him, for plain teaching is required by beginners.—COMBER, *Co. Down*.

Since I began to manage bees on the modern bar-frame system I have discovered the cause of many failures. One very frequent cause of misfortune is the loss of queens; the queen goes out in search of a mate, and she may never return. This colony at once dwindles away. The bees cannot manufacture a queen, as they have neither eggs nor grubs. In a bar-frame hive the intelligent bee-keeper can at once remedy this by giving the queenless bees a comb out of another hive containing eggs and brood. The bees at once will build "royal cells," and produce a queen or more in less than sixteen days, which, if she gets safely mated, will soon be at the head of a prosperous colony. It is hard to find out these things in a straw skep, whereas in a bar-frame all that is to do is to take out a few frames at any time, see the queen if she is there and laying, and if not the above can be done at once.

Weak swarms are of very little service, scarce able to do for themselves without sparing anything to their master. Strong ones for profit, and pleasure too. Strong hives can be made artificially by moderate feeding in autumn and spring.

Bees are very wise, for when honey ceases to come in the queen ceases to lay, as she comes to the conclusion that she need not bring young bees forward when there is no food for them. My hives are as full of young bees and brood as they were in July. The following is my plan—I procure the best sugar, and make it into syrup by putting six pints of water to 7 lbs. of sugar; boil for ten minutes. This I give to the bees in pickle bottles, which have muslin tied over their mouths, and put them into a hole at the top of the hive. The bees suck it through as they need it, which is constantly while there is any in the bottle, and seal it up for winter use. The queen, believing there are "good times," again commences to lay, producing a fine lot of bees for early spring work, so that by May I have my hives full, and ready either to swarm or gather honey and fill "supers." Most people will admit that there is something practical in all this. For is it not a grand thing to have our bees ready for honey-gathering when the honey is ready for them, and not be "looking for the ladle when the broth is in the fire?"

As bees are not always disposed to swarm at our time, artificial swarming can be resorted to, and is very simple and advantageous. This artificial swarming is a complete answer to men in business, from home all day, who say they would like to keep bees but would lose them in their absence. To make an artificial swarm from a straw skep: They are ready when they begin to be numerous around the hive or cluster around the entrance hole, so that any good day they can be given a good puff of smoke, the skep being inverted, with

the crown set in a stable bucket to hold it steady. An empty skep can now be placed on the top at an angle of 45°. A pin to make the junction secure will be needed, and a prop to hold the upper line or skep at the proper angle, so that the bees can be seen as they run up into the upper skep. A gentle drumming with the hands on the sides of the lower skep will cause the bees all to leave the lower and run to the upper skep. But as all are not required, about three-quarters will be enough if the queen is up. The new swarm can now be placed on the old stand, and the old skep placed on a new one close by, making both skeps to have the same appearance.

In bar frames all that has to be done is to take four or five frames out, with the queen on one of them, with all the bees, and place them in a new hive, putting the new hive on the old one's stand close by, replacing the five full bars of bees, brood, &c., with new bars containing comb-foundation guides.

The bees left in the old hive will at once commence to make a queen for themselves, and in a few days will have perhaps a dozen queen cells in course of hatching. Bees ought to have plenty of room or space for all purposes, for when a glut of honey comes, if there is much brood in the hive, they have nowhere to put it, or if they have the hive filled with honey in July the queen has nowhere to brood in the autumn, so that in fact there is a deficiency in both bees and honey in the autumn. If swarms are not wanted "supers" ought to be placed on the hive as early as May for the bees to store honey in, so that they could have the body box for breeding purposes, and that by July the numbers will surprise the small skepist, and the honey that fifteen or twenty thousand bees will gather in five or six weeks will repay us for all our extra trouble.

In depriving bees that are in straw skeps of their honey, it is cruel and wasteful to commit them to the sulphur pit. It can be done with the greatest of ease in the way I have described above, to proceed in artificial swarming. The bees will all run into the empty skep, in which they can be kept and fed into stocks for about 5s. each, or can be given to another weak stock, if such we have in the garden. To unite them: It can be done in the evening, by placing the hive to receive the bees on a plain surface, and propped up about 1½ inch. Give both lots of bees a good puff of smoke or some strong-scented things, so as to cause all to have the same smell, to prevent a fatal collision and the loss of much life; but if the scenting be attended to it can be done with scarcely a bee being killed. The scenting being done, take the driven bees and throw them down in a mass before the other hive, and they will at once run in. This uniting is an excellent plan, inasmuch as the bees are enabled to do with less food than if they were in separate hives. The quantity generates heat, and, therefore, less food is needed.

I have many other points to notice, and may again write about my profitable pets.—COMBER.

COTTAGERS' COMPETITION IN 1883.

THE British Bee-Keepers' Association with a laudable desire offer £21 in six prizes for a fair and well-arranged competition. The conditions appear to be clearly stated and quite satisfactory. The conditions do not favour or prejudice any kind of hive or system of management. As I sent my Journal containing the conditions to a Cheshire cottager, giving him a word of encouragement to enter his name as a competitor, and as he has not yet returned the paper, I cannot now review the conditions, but hope the Editor will repeat them in the Journal before the 1st of May, as entries cannot be made later. The prizes will be awarded in September of next year. Owing to the length of time this contest will last I fear that some will decline to enter the arena. Sixteen months seem a long time to spend in a contest with bee hives. If £20 were offered in three or four prizes to cottagers for the best results from two hives this present year, placed as near as possible under the conditions of the competition of the above Association, I fancy many experts in bee-keeping would compete and do their best. In such a competition some hives entered may be stronger at the commencement of the trial than others, and therefore the results might not be so instructive and convincing as in the Association's arrangement, yet the results would be interesting and encouraging, and the affair would be settled and known in six months. The British Bee-Keepers' Association is taking a step in the right direction, and will do much to encourage and promote bee-keeping in Great Britain by liberally supporting all such competitions.—A. PETTIGREW.

[We comply with our friend's request. The competition referred to is for the most profitable apiary managed upon economical principles, commencing on May 20th, 1882, and closing on August 30th, 1883, and the following are the rules and regulations:—

1, The object of this competition is to show the relative merits of different systems of bee-keeping, and to prove that bee-keeping, if conducted on economical principles, is highly remunerative to the bee-keeper.

2, Competitors shall be members of County Associations affiliated with the British Bee-Keepers' Association residing within the recognised boundaries of their respective counties, or members of the British Bee-Keepers' Association residing in the county of Middlesex. Each competitor shall be limited to one entry, and shall pay an entry fee of 5s.

3, Prizes of £6, £5, £4, £3, £2, £1, shall be awarded in order of merit to the competitors who shall derive the greatest profits from an experimental apiary of not more than two hives at the outset, which may be increased to any extent by natural or artificial swarming. The total capital to be employed in commencing and maintaining the apiary must not exceed £2, and the competition to extend from May 20th, 1882, to August 30th, 1883.

4, The apiary shall be established in the garden of some cottager to be selected by the competitor, and approved by the Secretary of the County Association, or in the case of the county of Middlesex by the Secretary of the British Bee-Keepers' Association.

5, The competitors shall keep a diary (a duplicate of which shall be kept at the cottage), in which all transactions connected with the apiary shall be recorded, and each item of expenditure and receipt entered. Such diary to become the property of the British Bee-Keepers' Association at the close of the competition.

6, Each hive shall be weighed, and the weight minus the roof and covering shall be recorded in the diary. The hives shall be stocked with bees without combs, the bees to be valued at 4s. per lb. Comb foundation may be used at any period of the competition at 2s. 6d. per lb. for thick, and 3s. per lb. for thin. No bees, brood, or natural comb to be imported into the apiary after commencing. Queens may be introduced into the hives at any period of the competition, and shall be valued as follows—In the month of May, 8s. each; June, 6s. each; July, 4s. each; any other month, 3s. each. All expenses incurred after the commencement of the competition must be defrayed from the original capital of £2. Vouchers must be produced for all purchases made throughout the competition, including hives, bees, and any appliances used at the commencement.

7, Each competitor may make his own hives and supers, but vouchers for the cost of the materials must be produced and the workmanship valued by the Secretary of the County Association or an expert appointed by him.

8, Every amount expended in the apiary for food or any other incidental matter of whatever nature shall be charged against the apiary, and everything legitimately sold shall be set down in its favour. Vouchers must be produced for all swarms and honey sold during the competition according to the printed forms supplied to each competitor for this purpose.

9, The Secretary of the County Association may visit the competing apiary at any reasonable time, or may appoint an expert to do so. The record of such visits, together with any remarks which it may be advisable to make, to be entered in the diary, which shall always be accessible for the purpose.

10, The competitor shall certify that during its continuance he has fulfilled all the conditions imposed by these rules, and that all his entries in the diary are true. The Secretary or his expert shall certify as to the quantity and value of the honey produced by each competitor.

11, Any attempt at fraud will be punished by disqualification.

12, All entries must be made on the proper printed forms and forwarded to the Assistant Secretary, Mr. J. Huckle, King's Langley, Watford, Herts, on or before May 1st, 1882, accompanied with the requisite fee, or the entry will not be made.—HERBERT R. PREL, Hon. Sec., Thornton Hall, Stony Stratford, Bucks.]

TRADE CATALOGUE RECEIVED.

Thomas Painter, Smallwood, Stoke-on-Trent.—Catalogue of Dahlias.



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Broad Beans (F. W.).—So much depends on the weather—whether the season proves hot and dry, or cold and wet—that it is impossible to name a time for insuring produce at a particular date. You can only succeed in your object by sowing at intervals from the last week in April to the first week in June, choosing an open position and strong soil.

Rose Cuttings (Vicar).—Two distinct modes of inserting Rose cuttings were described in the Journal last year. 1, inserting them closely together in boxes in the summer; 2, inserting them 6 inches apart in rows a foot asunder in the open air in the autumn. According to the first method the cuttings ought to have been potted months ago; according to the second they may remain where inserted until next November, they will then be fine plants, and can be planted where they are required to flower.

Destroying Ants (G. R., Wiltshire).—You will find some methods for exterminating ants in reply to a correspondent on page 290 of our last issue. If there are no roots of plants in the soil where the ants are so troublesome a rather strong mixture of paraffin and soapsuds would doubtless destroy many and drive the remainder away. The precise method of extermination, however, must depend on circumstances, and these, in your case, you do not name.

Striking Rhododendrons (C. M. M.).—The soft young shoots to which you allude will not emit roots under any mode of treatment with which we are acquainted, but if you wait until the growths are a little firm at the base and insert them in sandy soil, cover with a bellglass, and place the pots on a warm bed in a moderately heated frame or propagating house, you may perhaps succeed in your object, but everything depends on your skill as a propagator.

Shading Pits and Frames (A. M. B.).—We do not advise you to adopt any method of shading of a permanent character for pits in which Vines, and

frames in which Melons and Cucumbers are grown. With good glass—that is, glass that has no lens in it, and a judicious system of ventilation, shade is not needed by Vines, but, on the contrary, all the sun they can receive is advantageous. Cucumbers and Melons seldom require shading, and the glass should never be permanently clouded. Occasionally, such as for a short time after planting, or a sudden return of brilliant weather after a dull period, the foliage is liable to injury if not slightly shaded; but in such cases a little tiffany or hexagon netting will suffice, and it ought not to remain on the glass an hour longer than is essential for preventing scorching. The method of shading to which you refer is useful for conservatories and houses containing softwooded plants generally, but we are unable to advise it for fruit culture. If water is scarce then shading has often to be adopted, on the principle of choosing the lesser of two evils, and even then we prefer a portable to a permanent method for such crops as you mention.

Scions for Grafting (F. C.).—We are obliged by your letter. We have made the same experiments that you describe, and have often cut scions from the trees and attached them at once to the stocks with the best results; but that was when the growths on the former had not started to any great extent. We have always found the advantage of having the stocks slightly in advance of the scion. But we fail to see how this could be attained with the trees to be grafted growing in a cold locality, while the scions were still on the trees in a district quite three weeks earlier. The growths on our trees are decidedly too advanced even for transferring to stocks in the same garden, and to have such scions sent safely for use in a later district, they ought to have been severed quite three weeks ago, and twice that time would have been better. The firm you name is respectable, and ought to return the stamps.

Culture of the Melocactus (Inquirer).—You appear to be very successful in flowering these plants, and your system of culture generally is so good that we can suggest no alteration except as regards the supply of liquid manure, which is scarcely needed so frequently, though abundance of water is needed during the season of growth. The important point is having the plants fully exposed to the sun in a high temperature until growth is matured; after that a moderately low temperature will suffice, with little or no water for several months. We give your method briefly for the benefit of other readers—"In March I commence supplying the plants with water, and any that need re-potting are attended to, though every alternate year is quite frequently enough for potting. The compost I employ consists of three parts old mortar rubbish and one part turfy loam well incorporated. Until autumn liquid manure is given at every other watering, when the supply of that and clear water is discontinued. The plants are placed on the shelves of a forcing house close to the glass."

The Bean Beetle (C. J. W., Kent).—The insect concerning which you desire some information is the *Bruchus granarius* of entomologists. We referred to it briefly last week; but as you and others desire fuller particulars we give the accompanying woodcut, representing the mature beetle of its natural size and magnified. The following description of the insect and the best modes of preventing its attacks appear in the "Manual of Injurious Insects," by Miss E. A. Ormerod, in which you will also find further particulars:—"The Bean Beetle injures the crop by laying its eggs in the Beans and Peas whilst they are still soft in the pods, often choosing the finest for the purpose. The maggots feed inside the seed, sometimes eating away most of the contents, but generally leaving the growing germ uninjured, so that the seed does not lose its power of sprouting. When full-grown the maggot gnaws a round hole to the inside of the husk of the seed, and usually cuts a line round this kind of circular lid of its burrow, so that when needed to be displaced afterwards for the escape of the beetle, the lid will fall out on a touch. The maggot turns to the pupa in the Bean or Pea in which it has fed, and appears generally to pass the winter in this state. When spring comes it changes to the perfect beetle, and makes its escape either by gnawing a way out, or—commonly—by pushing out the loose lid of its burrow. The beetle is little more than the eighth of an inch long. Much may be done in the way of prevention by attention to the seed before it is sown. The maggot goes on feeding in the seed after it is stored; by the end of autumn probably all the beetle-maggots will be full fed, and will have eaten their way in the seed to the inside of the skin. This will show on the outside as a round or oval mark, rather duller in colour than the rest of the skin, and rather more transparent, from the substance of the seed being cleared away behind it. If this round piece of skin be lifted off the Bean beetle will probably be found inside, and by this mark infested seed may be known. Such seed should not be sown. If Beans or Peas thus infested are sown the beetles will not be in the slightest degree injured by being buried, but will come up through the ground in due time to infest the new crop. The Bean beetles begin to appear in February, although some may still be found in the seeds till May. When they have left the seed the round hole through which they escaped will show where they have been, and such seed is to be avoided. The injured seed will sprout in most cases, but although the growing germ is left a great part of what this germ needs to make it grow healthily is gone. Crops of autumn-sown Beans have been found to be the most infested, because, as above mentioned, the beetles are still in the seed, and before the maggot-injury shows through the skin it is not easy to tell which are the infested Beans. It is difficult to apply any remedy in the field suitable to such a small insect, but the use of spent hops as a manure, which is found serviceable in other cases of insect-attack, might be of use here. Bean beetles (*Bruchi*) of various species are found—sometimes in enormous quantities—in imported seed, and where there is much Bean-growing round mills where Beans are ground, it would be highly desirable some measures should be taken to save us from the consequences of the vast numbers sometimes to be found in such places. Dipping the Beans or Peas in boiling water for one minute is stated to kill the grub inside without hurting the seed; but as dipping for four minutes generally destroyed the germinating power the experiment is much too hazardous for general use as regards seed, though it might be acted on with advantage with regard to Beans or Peas about to be ground."



Fig. 63.

Vine Borders (S. J.).—The site for a border should be governed by circumstances, as much depends on the varieties of Grapes that are grown, and whether they are to be managed by a skilled cultivator or inexperienced amateur. When such free-growing early Grapes as the Black Hamburgh are grown by amateurs they are usually best in properly drained outside borders. With good management, however, they succeed equally well planted inside, the

roots having access to outside borders. Not knowing your object and experience nor anything of the nature of the soil and subsoil in your garden, we are unable to give you a more explicit reply.

Rose Cuttings (H. B.).—As the bed in which the cuttings were inserted is, we presume, small—that is, not more than 4 feet in width, the plants would not be seriously drawn if allowed to remain where they are until the autumn. This would be the most certain mode of preserving "all of them." If taken up and potted and eventually planted out you would obtain stronger plants, but a few of them would almost certainly fail to grow, and rather a large proportion might die unless very great care were exercised in taking them up, potting, watering, and ventilation. To a skilled cultivator we should say, Pot them and keep them close for a time in a frame, gradually increasing the ventilation as they advanced in growth. To an inexperienced amateur we should say, The simplest and safest plan will be to let them remain where they are until the autumn, by which time they will be strong plants, and can be removed and transplanted with safety.

New and Old Zinc Labels (North London).—The following extract from a communication which appeared in our columns several years ago is perhaps what you recollect having read; at any rate it applies directly to the subject of your letter. "Where zinc tallies are used purchase some old zinc spouting or lining from watertanks, of suitable thickness, and get it cut up into the shaped tallies required. This old zinc being oxidised on the surface, from exposure to the atmosphere, marks the best and blackest of any. When new zinc tallies are used, and time will not admit of allowing them to become oxidised from mere exposure, to free the surface from grease, with which newly rolled zinc is always more or less impregnated, the best way is to throw them into an earthenware basin containing a mixture of about one part aquafortis, two parts spirits of salts, and fourteen parts of water; stir them well round for a minute or two with a piece of stick, so as to expose all the surfaces equally to the action of the dilute acid, pour off the liquid into another basin, well wash the tallies in water, and dry them in the air, and they are ready for use. Spirits of salts will do very well without the aquafortis. In this way any number of tallies may be done at one operation, and the trouble is much less, and the tally made more efficient than by the old plan of rubbing each one with sand paper. The acid mixture may be kept in the basin or put into a bottle for future use, and a little fresh acid may be added to it from time to time to keep up the original strength." We have not used old or oxidised zinc for labels, and are consequently unable to confirm what has been said by the correspondent whose remarks we have cited.

Seakale as a Green Vegetable (S. Lawson).—The late Mr. R. Fish, we believe, first pointed out the excellence of the green flower heads of Seakale when cut and boiled just before the flowers commence expanding. The following testimony was subsequently given in favour of this method of using Seakale. "After reading Mr. Fish's remarks I went into the kitchen garden and spied some of the incipient flower heads that I had promised decapitation and ignominious expulsion on the first convenient occasion. I immediately got what I thought would be a boiling; at dinner time they appeared looking beautifully green; and on trial, without gravy or any other accompaniment, they were deliciously sweet, with a delicate hint of the Kale flavour. The two censors, pater and materfamilias, decided that, as a green vegetable and a relief from the flavour of Broccoli, Cabbage, and the other members of the Cabbagewort, they were a decided acquisition. On inquiry I found that they were put on in boiling water, putting a little salt in the water and boiled quickly. They were done to a juicy in half an hour."

Brick-kilns Injurious to Vegetation (William Foster).—There is no doubt whatever that the sulphurous fumes from brick-kilns are injurious to vegetation, and not infrequently most destructive. That this is so the specimens you have sent to us demonstrate. You ought to have no difficulty in satisfying a jury that the damage received by your shrubs is really caused by the fumes in question. Such symptoms as those before us can only be produced by frost or noxious gases. After a severe winter you might not find it easy to satisfy a body of impartial men that in this case frost was not the cause of injury; but after what we may describe as a winterless season, during which there has absolutely been no frost that could injure either the Conifers or Laurels you have sent to us, there is conclusive evidence that their destruction is caused by noxious gases and not by frost. We have seen great injury done to nursery stock in the establishment of Mr. Pennell at Lincoln by brick-kilns, and the symptoms there were precisely similar to those now before us, and exactly similar, too, to those exhibited by many plants in the conservatory of the Royal Horticultural Society at South Kensington this spring during the recent Smoke Abatement Exhibition in the gardens. If you refer to the *Journal of Horticulture* of February 25th, 1875, page 163, vol. xxviii., you will find an article by Mr. Pennell on this subject, wherein he adduces incontrovertible proof of injury to his shrubs by the smoke from contiguous brick-kilns, for he states he has had "two actions against an owner for damage done by his kilns and gained both." We suggest that you place Mr. Pennell's article in the hands of your solicitor, who will, no doubt, take the necessary steps for obtaining the pleadings in the cases referred to, and which could scarcely fail being of great value to you under the circumstances.

Names of Fruit (H. M.).—Your Apple is Fearn's Pippin, which has kept well. It is a free-bearing useful variety, profitable for market, its colour being admired. It is a good culinary Apple, and is occasionally used for dessert.

Names of Plants (C. W.).—Amelanchier ovalis. (J. W. C.).—Forsythia viridissima.

Hiving Bees among Bar Frames (Quillo).—You want to know the best way of putting a new swarm into a Woodbury bar-frame hive. If a swarm alights on a hedge the live without the bottom board may be placed on and over it, so that the bees will run up amongst the bars and settle at once. If the swarm alight on a branch of a tree cut the branch off with the swarm and lay them on a table or the ground, place and prop the hive on and over them. If the branch cannot be cut off, shake the swarm into a straw hive and give them a few minutes' time to settle in it. Then invert it by placing it on its crown, and place the bar-framer on it and thus let the bees run up into it. Another mode is to place the frame hive on the ground in its natural position, remove the crown board and withdraw two frames, turn up the straw live with the swarm, give it a violent shake so that all the swarm loses foothold and falls into the bottom, then suddenly pour the bees into the empty space of the bar-framer, put in the two frames, place the crown board on. This is our mode of peopling frame hives. It is easily done by experts. The two frames are removed from one end of the hive so that the swarm can be shaken into the other end, and the two frames will drop into their places at once. All can be done in less than a minute. If the bottom board is fixed to the hive the crown board should be removed for the reception of the swarm, even in hiving them from a hedge.

Supers Spoiled by Brood (R. B.).—Straw skeps with central holes are very subject to the annoyance complained of. The reason is obvious. The queen more usually roams for ovipositing over the central combs only, and in her wanderings she passes upwards through an aperture lying in her accustomed path and spoils the harvest. The structure of the skep does not easily admit of openings towards the side, but in frame hives and the Stewarton side openings have long been used with almost uniform success. The modern section box is uncongenial to the taste of the queen, and should she find her way into one she quickly returns to the larger combs of the hive. For these reasons the owners of frame hives who are good managers only rarely employ queen-excluders, as they certainly retard the adoption of supers and surplus boxes of all forms. The diaphragm referred to in your letter would not allow the queen to pass, but we rather think the true cure lies in a more modern arrangement of the hive itself.

COVENT GARDEN MARKET.—APRIL 12.

THE holidays have quite upset our market; scarcely anything doing.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	2 0 to 6 0	Lemons.....	15 case	0 to 20 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	0 0 0 0
Cherries.....	1 lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	100 100	4 0 6 0
Currants, Black..	1 sieve	0 0 0 0	Peaches.....	dozen	0 0 0 0
" Red....	1 sieve	0 0 0 0	Pears, kitchen..	dozen	1 0 1 6
Figs.....	dozen	0 0 0 0	dessert..	dozen	0 0 0 0
Filberts.....	1 lb.	0 0 0 0	Pine Apples....	1 lb.	1 6 2 0
Cobs.....	100 lb.	45 0 60 0	Strawberries...	per lb.	6 0 10 0
Gooseberries....	1 sieve	0 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	1 lb.	6 0 12 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	9 0 10 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	100 100	2 0 2 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling..	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	1 sieve	1 3 1 6	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 6
Carrots.....	bunch	0 4 0 6	Kidney....	bushel	3 0 3 0
Capsicums.....	100 100	1 6 2 0	Radishes..... doz.	bunches	1 0 0 6
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsify.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	1 0 1 6
Endive.....	dozen	1 0 2 0	Shallots.....	1 lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	1 lb.	0 6 0 0	Tomatoes.....	1 lb.	1 0 2 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 6 0



POULTRY AND PIGEON CHRONICLE.

INJURIOUS INSECTS.

(Continued from page 293.)

VARIOUS opinions are entertained by different writers as to the best mode of destroying wireworms; nevertheless, all agree as to the serious injury committed by these insects upon the farmer's crops, both of corn and roots. There is no doubt that difference of soil or season may cause the failure of a remedy which might have succeeded elsewhere. We wish to give our experience as to the wireworms whilst we were farming a mixed soil, varying from strong clay to gravel and sandy loam, upon the four-course rotation. We not only suffered a serious loss by their attacks on the Wheat but also on the Lent corn, as well as on Swedes and other root crops. At the time, however, of the first appearance of the Potato disease we had never grown any Potatoes in field culture; still, as so many growers had actually given up their growth we entertained the idea that success might be attained, especially if we could obtain seed for planting which had not suffered from the disease. Some of the Fluke variety, reputed as not suffering from the disease, was obtained, and very good crops resulted, sound for some years, but eventually they became diseased the same as other sorts. It was, however, especially noticed at digging time the great number of wireworms which had secreted themselves in the tubers, and were consequently carried off the farm by the men who purchased the crops on the land. Our people employed on the farm after the lapse of several

years remarked that since we had grown Potatoes no following crop, whether of Wheat, Barley, or Oats, had been attacked by the wireworm as before. We occupied the farm for twenty-three years after commencing Potato culture, and during that period our crops never suffered injury from wireworms.

In certain seasons, particularly after heavy rainfalls, we lost valuable crops from the little white slugs and minute snails; but in the year 1866 in particular we manured the land and drilled Mangold seed at once, ploughing after the hay crop about the 20th of June: the young Mangold plants were eaten by the slugs as fast as they appeared. We decided upon planting Broccoli, having a large number of strong plants; these proved too much for the slugs, a fine crop being the result. These instances point in a direction we have often referred to—that is, the policy of being prepared on the home farm with plenty of seed beds of different sorts of roots and vegetables, to be ready under adverse circumstances for planting where failures have wholly or partially taken place. Resowing would be more than usually uncertain, even after the application of the usual remedies, such as strewing leaves or sliced roots over the land as traps to be examined daily for catching the slugs or wireworms, as the case may be.

The next point we have to consider is the enemies likely to injure the root crops during the next stage of their growth—that is, at hoeing time and immediately after the plants have been set out. Wireworms would at this stage of growth continue to injure the plants if they were present; but in that case, if the land was in good condition and well manured, the plants would soon grow away from them. They would, however, still be open to the attack of the brown grubs, of which there are various kinds; but the most injurious appear to be of two sorts, one being derived from the daddy-longlegs or crane fly, the other derived from the Cabbage or root-eating fly. The larvæ of these are brown grubs, the latter being destructive to the Cabbage tribes chiefly, the former being injurious principally to root crops. Although these grubs are seriously injurious to root crops in all stages of their growth, yet when they commence upon the young plants just after they are set out we notice the loss more particularly.

To give an instance in our culture of Carrots in the field for winter use in feeding lambs and other choice stock grown by us, we had on one occasion a case that as soon as the Carrot plants had been hoed out at 12 inches apart in the lines, and the lines being 15 inches apart, they were attacked by the brown grub and destroyed, not one plant in a hundred being saved. These were ploughed in and the white Turnip seed was sown, but it would have been better if the land had been planted with strong-rooted and large Cabbage plants, as was ascertained by after experience. This fatality attached to our Carrot cultivation taught us a useful lesson, for in order to avoid the loss of such a valuable crop as Carrots for our lambs and young fattening cattle, cart colts, &c., we, instead of hoeing the Carrots in the lines, merely hand or horse-hoed between the lines, and instead of setting out the plants with the hoes the crop was allowed to remain in the rows until the roots became of the size of the finger or thumb. We then set women to pull all the smallest plants by hand, leaving the best plants at about 10 or 12 inches apart. In this way we obtained in the months of August and September a large quantity of valuable food for our fattening cattle, varying from 8 to 12 tons per acre. By this system of management fine crops of Carrots were obtained, for after pulling the smallest roots, it opened the land and allowed the remaining roots to swell quickly to a large size. At the same time for five weeks was obtained daily several cart-loads of young Carrots, upon which our cattle in the boxes improved faster than by any other mode of feeding usual at the time of year, and which paid well for the expenses attending the pulling and setting out the roots.

In this way the home farmer may foil the grubs and improve the value of his crop simultaneously; in fact, when situated near towns the young Carrots when pulled, if of the red sort, may be sold in bunches at the time of pulling and thinning the crop. Such a plan, however, could not be carried out with Mangolds and Turnips with advantage; if, therefore, the attack of grubs is serious, some may be trapped by placing slices of Potatoes or other roots on the surface. But the safest, though most costly, manner of ridding the land of them is to employ women with short pointed sticks to seek for insects by the removal of the earth round the roots of the plants which show the most damage done by their injured growth. It is only in very dry seasons, when the growth of the plants is slow, that much real injury is inflicted, and which makes it desirable and profitable to incur the cost of examination of the growing roots, and hand-picking the grubs and carrying them away to be destroyed. In some dry seasons we have employed women to search for the grubs; but in ordinary seasons when the weather is favourable and induces the root plants to grow fast, we do not heed the attack of grubs, for fair crops can be obtained although these insects may be found at work to some considerable extent, and thus save a rather heavy expense.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Not a day should be lost now, the first and most important work being to drill the Mangold seed. If the land has not received any yard or town manure either in the autumn or lately, the application of artificial manure should be more liberal at the time of seeding, which may be applied by the drill; but in case of the land being bouted or stetched it may be distributed broadcast by hand and the stetches reversed by the plough; this will bury the seed in the centre of the ridges. Yet it may be done as in the Scotch or northern counties, where ridge and manure and seed drills combined answer every purpose; the little rollers attached buries the seed well and leaves the land close and moist. Two cwt. of best Peruvian guano and 4 cwt. of bone superphosphate mixed with ashes is a sufficient dressing to produce a full crop if applied by the drill either on the flat or stetch, but when strewed broadcast 3 cwt. of guano and 4 cwt. of bone superphosphate will be none too much, simply because the guano will not be likely to injure the seed when it first vegetates, as when applied by the drill in contact with the seed. In some cases we have grown fine Mangolds on the stetch, the seed being dibbled by women, or drilled by the garden hand drill.

POULTRY AND PIGEONS

POULTRY IN CONFINEMENT.

"GRASS runs are essential for poultry" is the stereotyped advice that is given in books, and possibly it may be good advice; but now and then we find poultry kept profitably where grass cannot grow, and the term "run" becomes a misnomer, for the birds have scarcely room to walk in their "run" of coal ashes. During my Easter holiday I observed in the suburban garden of an artisan a wire pen 15 feet long and 4 feet wide, in which twelve birds, the picture of health, were kept, and which by good attention and judicious feeding not only paid their way but left a pleasant margin of profit to the owner. On inquiry I found he had kept fowls in the same pen for the last seven years and "never had any trouble with them." Green food, such as the refuse from greengrocers' shops, is given in abundance, and house scraps scalded and mixed with meal constitutes their staple food, with a feed of dry corn at night. No birds are kept more than two years except a favourite hen, which is a "good setter and fine mother." The breed appears to be a Dorking and Brahma cross, the latter preponderating. I never saw a more satisfactory instance of poultry-keeping, and in this case a grass run is certainly not essential. There is no doubt whatever that many persons with small conveniences may have a supply of fresh-laid eggs who now have to pay 2d. each for them, if they will consider the requirements of the birds and studiously minister to their wants.—A COUNTRYMAN.

EARLY CHICKS IN THE FAR WEST.

CHICKS that are hatched in midwinter, or even in early spring, need much care to rear them up to a marketable size. In addition to well-lighted, well-warmed, and well-ventilated quarters they must have plenty of the right kind of food, and must be fed regularly and often.

For two or three hours after the chicks leave the shells they should remain in the trays. At the end of that time they will be dry and lively, and should be removed to the artificial mothers and then left undisturbed for twelve hours. Do not feed too soon. Lots of infant chickens come to an untimely end because their owners will stuff them as soon as possible after they get into this world. Twelve or fifteen hours after hatching is soon enough to give the first meal, which should not be meal at all, but just hard-boiled eggs crumbled fine. The clear eggs that are taken from the incubator at the first testing should be saved for chicken feed. For the first few days the food should consist of hard-boiled eggs, curds, stale bread moistened with milk, and a little cooked rice. When four or five days old commence feeding cooked corn meal, oatmeal, boiled potatoes, and as soon as you quit the boiled eggs a little cooked meat every day. The food may be seasoned slightly with salt and pepper, and two or three times a week give a little bone meal mixed with the food. Green food must be given once each day—it is indispensable.

How to obtain in winter a constant supply of green food suitable for little chicks is one of the many problems that the poultry raiser must solve. We have settled the question, so far as we are concerned, by raising Lettuce, grass, and Oats in shallow boxes hung around the room where we keep the chicks. A small box of Lettuce lasts quite a while, for we only cut off the leaves with sharp shears, and the roots soon send up a new crop.

Early chicks must be fed often, not three or four times a day, but six times between daylight and dark. Feed each time all that the chicks will eat up clean, but do not leave any food around to sour. As soon as the chicks are big enough to swallow the grains, the last feed at night should be wheat, wheat screenings, cracked corn, millet, &c., and just as soon as they leave the artificial mother and go to pecking and scratching around in the dry gravel or sand which should cover the floor, it is a good plan to scatter wheat, cracked corn, &c., among the gravel, and let them scratch it out. The object in feeding early chickens is to get the largest and best chickens possible in a given time, and in order to do this we must keep them eating about all the time. There is but little danger of overfeeding growing chicks, but there is much danger of underfeeding, and the wise poultry raiser will avoid it. Remember that if your chickens once get stunted from lack of food no amount of cramming afterwards will ever make first-class broilers of them.

As to when to market: 10 so when your chickens are well feathered and will weigh from 2 to 3 lbs. each, live weight, or from 1½ lb. to 2 lbs. dressed, they are ready to figure in the markets as "spring chickens." Do not send chickens that are "long and lean" and not more than half feathered, and do not send those that are no larger than quails, even if they do happen to be well feathered. A few weeks ago I saw in an agricultural journal the following quotation, "The smaller the chicken, if well feathered, the greater the price per lb.," but several years' experience in raising and marketing chickens for broilers has taught me that a 2-lb. chicken will sell quicker and bring more money than a 1-lb. chicken.—(Prairie Farmer.)

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1882.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
April.										
Sun.	29.849	50.3	46.8	S.E.	45.8	58.0	39.0	103.3	35.0	—
Mon. 3	29.939	46.3	45.6	E.	46.5	57.6	45.0	101.7	45.2	—
Tues. 4	30.065	47.8	43.2	S.E.	46.6	56.6	42.0	103.4	37.7	—
Wed. 5	30.056	45.7	42.9	N.	46.8	54.8	40.5	105.6	35.8	—
Thurs. 6	30.210	47.4	46.0	N.	45.4	64.4	37.6	107.0	28.4	—
Friday 7	30.302	51.0	46.0	E.	46.5	60.6	38.2	110.3	31.6	—
Satur. 8	30.350	53.3	46.9	N.E.	46.8	64.1	37.8	111.2	32.1	—
	30.110	48.8	45.3		46.3	59.4	40.0	106.1	35.1	—

REMARKS.

- 2nd.—Morning fine and bright; overcast in afternoon with cold wind.
- 3rd.—Dull cloudy morning, afterwards finer with bright sunshine.
- 4th.—Fine, bright sunshine, cold wind.
- 5th.—Cloudy, cold, sunshine at intervals; very slight rain in forenoon.
- 6th.—Very fine, bright, and sunny; misty evening.
- 7th.—Bright hot sunshine; almost cloudless sky; cold wind.
- 8th.—Very fine and bright; wind still cool.

The weather continues dry and fine, and although the nights are cold the average temperature continues greatly in excess.—G. J. SYMONS.



20th	TH	Birmingham Spring Show. (Second day.)
21st	F	
22nd	S	Royal Botanic Society, 3.45 P.M.
23rd	SUN	2ND SUNDAY AFTER EASTER.
24th	M	[11 A.M. National Auricula Society's Show.
25th	TU	Royal Horticultural Society, Fruit and Floral Committees at
26th	W	Royal Botanic Society's Second Spring Show.

DAHLIAS.

WHATEVER objections may be raised against the Dahlia, whether on account of its tenderness, its strong growth, its lack of agreeable perfume, or the transiency of its period of beauty, it must certainly rank among the grandest of autumn flowers; and it is not unlikely that more attention will be devoted to the culture of the plants now that encouragement is being given by the inauguration of a national show of their noble blooms.

Dahlias are certainly tender, so are many other plants that are employed for the embellishment of gardens, and which need glass structures and hot-water apparatus for preserving them during the winter. These the flowers under notice do not require, therefore let not the objection of tenderness be unduly magnified. Dahlias are certainly of strong, even some of them of a luxuriant, habit of growth; but there are positions in gardens which only plants of this character can appropriately occupy. They are not intended for carpet beds nor the front rows of ribbon borders, but in proper situations how fine they are! and of late years there have been no beds more imposing than the large circles in the grounds of the Crystal Palace when gay with these flowers. They are not sweet, neither are French and African Marigolds and Camellias, yet their symmetry, massiveness, and brightness insure their retention in gardens. They are late in flowering it is true, but are they wanted earlier? The beauty of a garden consists in the floral changes that are ever occurring, and Dahlias come soon enough if they do not always last long enough; while even as regards their transiency, the objection, such as it is, applies with equal force to Hyacinths and Tulips, Auriculas, Carnations, and Chrysanthemums. No flower possesses all the charms in combination any more than any one man possesses all the accomplishments and his wife all the virtues. Let us, therefore, not be too searching after faults in judging the flowers under notice, but be fair in our estimate by recognising some of their merits and claims to attention at the hands of cultivators.

The Dahlia should command respect, as the finest types embody and represent in a very striking manner the skill of man. Let those who are old enough to do so bring to mind the ragged-petalled gaudy-eyed flowers of the past, and compare them with the perfectly cupped florets and splendid symmetry of the blooms of to-day, and let them reflect how much thought, labour, care, and watchfulness have been exercised in effecting the wonderful transformation. It is not to be expected, nor even desired, that everybody will consider this great change an improvement. They think the single flowers more attractive

than the double. Very well, let them enjoy them; but they must still admit improvement, for there are more single Dahlias now than was ever known before in the history of flowers—plants of better habit, more floriferous, with a greater variety of colours and far more beautiful flowers than were ever previously seen. Let, then, the Dahlia be respected, not contemned.

In the garden the plants have a beauty all their own—a beauty that can be seen without the aid of an eye-glass; and what flowers can equal their noble blooms for church and harvest festivals, and other ceremonial or domestic adornments? Both doubles and singles are alike in requisition for these purposes, and hundreds of persons endure the humiliation of begging blooms each year who have the means for growing them.

Then look at the blooms in the show-room as we hope to see them at the Crystal Palace in September, and say if any other flowers are more imposing. As forming a special show the Rose overshadows all flowers, as a queen should. An Auricula show is delicate and dainty, even lovely; a Carnation show trim, chaste, and even charming; a Chrysanthemum show bright and beautiful; but a first-class Dahlia show is grand.

In consequence of the absorbing character of the style of flower gardening that has flourished during the past quarter of a century Dahlias have been too much neglected. Many gardeners just reaching manhood know little or nothing of the history of the plant, and very briefly it may be referred to.

Botanists are now mostly agreed that the florist's Dahlias have originated from two species, *D. superflua* and *D. frustanea*, though some unite them under the name of *D. variabilis*—a very appropriate title, for the variation in form and colour of the flowers cause them to merge into each other, and it is not easy to indicate any clear marks of distinction. The chief character, however, which has been selected for this purpose is the involucre (the bracts surrounding the flowers), which in *D. superflua* is reflexed, and in *D. frustanea* is spreading. In other respects they are similar, having strong succulent stems, divided leaves, and flower heads in which the outer florets are flat, broad, spreading, and richly coloured, the central florets being tubular and yellow. Dahlias were first mentioned by Hernandez in his account of Mexico about the middle of the seventeenth century, and two figures are given under the Mexican names, with descriptions of their supposed medicinal properties. Some years subsequently a traveller in Mexico, named Menonville, who was, it is said, "employed by the French minister to steal the cochineal insect from the Spaniards," also noticed them, commenting on their great beauty.

In 1789 plants of *D. superflua* were introduced to England by the Marchioness of Bute, and some were grown in Madrid at the same time, and among the latter the first one which flowered in the autumn of 1789 enabled Cavanilles, a Spanish botanist, to define the genus under the name of *Dahlia pinnata*, the genus being named in honour of Dahl, a pupil of Linnæus, and the specific title referring to the form of the leaves, and this appears to be the *D. superflua* of succeeding authors. Two other forms also flowered in following years, and were respectively named *D. rosea* and *D. coccinea*, and all were figured in a botanical work published at the end of that century. The first plants introduced by the Marchioness of Bute appear to have been lost, and in 1804 seeds were sent by Lady Holland

from Madrid to England, and plants were raised from these, which flowered in that and the following years. In Andrews' "Botanist's Repository," 1804, one of these, *D. pinnata*, was figured from a plant "that flowered in September and October in the open ground at Holland House, Kensington." This has large florets of a purplish crimson colour, the centre being bright yellow. In the same year a figure of *D. eoccinea* appeared in the "Botanical Magazine," which has small bright orange scarlet flowers, and was said to have been introduced from France in the previous year by Mr. Fraser of Sloane Square. The second edition of the "Hortus Kewensis" in 1813 gives three varieties of *D. superflua*—namely, *purpurea*, *lilacina*, and *nana*, and only mentions another species, *D. frustanea*, as synonymous with the *D. eoccinea* of the "Botanical Magazine." In this work an engraving of a single form of *D. superflua* appeared in 1817, together with a representation of one of the so-called double varieties, the first presumably that was figured. It has flat purplish florets, not cupped like we have them now, but full and of good form. In connection with these it is mentioned that it was the opinion of Deandolle that "No blue variety of *Dahlia superflua* would ever be found, because blue and yellow being the two primitive colours of flowers, and always exclusive of each other, no blue flower ever changes to yellow, nor yellow to blue." Both these drawings were made from specimens in the Comte de Vande's garden, who had imported them from France, where it appears Dahlias had then been receiving much attention for some years.

In England Dahlias steadily progressed in public favour, and in 1830 the varieties were numerous and the culture amongst florists general. During the following twenty years considerable advance was made; a greater diversity of shades had been obtained, the flowers having also been much improved in form, the flat-floret forms gradually giving place to those with the margins of the florets neatly rolled inwards, the flower in symmetry and substance being raised to a high standard. In recent years there has been a slight falling-off in public attention to the florist's varieties, the single forms being again encouraged, together with the small-flowered or bouquet varieties and those suitable for bedding. It is, however, gratifying to observe that efforts are being made to restore the choicer exhibition forms to general favour.

Amongst the most recent novelties exhibited or raised by the nurserymen who pay special attention to Dahlias, the following are particularly worthy of notice for the richness and distinctiveness of their tints, combined with symmetrical form. Taking the Show varieties first we have *Cyprus*, bright yellow, very full and neat bloom; *Ethel Britten*, florets white tipped with purple, bloom large and excellent in form; *Empress Eugénie*, rich purple, neatly cupped florets, bloom large; *Charles Springham*, rich scarlet, bloom of moderate size but good form; *Goldfinder*, florets yellow, tipped at the back with crimson, flower deep and full; *James Vick*, intense purplish maroon, handsome symmetrical bloom; *Joseph Green*, clear bright scarlet, beautifully formed bloom; *Revival*, rich crimson, shading to scarlet at the tips of the florets; *William Rawlings*, rich glowing crimson-purple bloom, very deep and symmetrical in form; *Joseph B. Service*, bright yellow, of very good form and substance; *Miss Batchelor*, very bright scarlet, excellent form; *Pioneer*, intense deep maroon colour, nearly black, one of the darkest varieties, of fine form. Of the Fancy varieties the following are noteworthy:—*Queen Mercedes*, florets white tinged with purple, blooms of good form; *Splendid*, pale purple, streaked and spotted with maroon, flower large; *Florence Brown*, buff, streaked with crimson, bloom symmetrical; *James O'Brien*, yellow, with crimson and rose streaks; *Lady Antrobus*, florets red, tipped with white; and *Professor Fawcett*, dark lilac, striped with chocolate. Three excellent bedding varieties recently sent out are *George Thompson*, yellow, very free; *King of the Bedders*, deep crimson tinged with purple, very dwarf; and *Fire King*, brilliant scarlet and very free, grand for borders. Notable bouquet varieties are *Dora*, white, tinged on the upper surface of the florets with yellow; *Frau Professor Klug*, rosy pink, very neat; and *Dr. Raueh*, salmon red, very pretty blooms. Of the recent single varieties *Avalanche* and *White Queen*, both white, are very beautiful;

King of Crimsons, rich crimson; and *Model*, orange scarlet, are also good. Amongst the curiosities, *Hender's Double-floret Dahlia* should be included, each of the principal florets enclosing several others; while the *Caetus Dahlia*, *D. Juarezi*, deserves notice for its large deep scarlet blooms, the florets being flat and spreading.

Having briefly referred to the chief new varieties in each section, the following lists include some of the most distinct of the older forms:—

Show Varieties.—Chris. Ridley, Canary, James Coeker, John Greenaway, Johnny Ludlow, Julia Wyatt, Ovid, Thomas Goodwin, Toison d'Or, Vice-President, Mrs. Henshaw, Paradise Williams, Picotee, Rifleman, Mrs. Harris, John Downie, John Bennett, John Standish, William Lord, Lady Golightly, Leah, Lord Derby, Criterion, and Gladiator.

Fancy Varieties.—Mrs. Saunders, Henry Glassecock, Monsieur Chauvière, Grand Sultan, Mrs. Purves, Peasecock, Letty Coles, Laura Haslam, Flora Wyatt, Maid of Athens, Wizard, Fanny Sturt.

Bedding Varieties.—Rising Sun, Marguerite Bruant, Mont Blanc, Little Wonder, The Pet, Cloth of Gold, Dark Model, Flora MacDonald, Faust, Royal Purple, Prince Frederick William, Aurora.

Bouquet Varieties.—Fireball, Lady Blanche, Amelie Barbier, Little Arthur, Prince of Liliputians, Dove, White Aster, Crimson Beauty, Burning Coal, John Sandy, Louis Rodani, Triumph.

Single Varieties.—Paragon, eoccinea, lutea, alba, glabrata, and Cervantesi.

These selections may be useful at this the precise period for procuring plants.—COMPOSITE.

MUSHROOMS FOR THE MILLION.

(Continued from page 275.)

THE MOST REMUNERATIVE OUTDOOR CROP KNOWN.

As there is no small number of individuals who are deeply impressed with the idea that anything can be proved by figures, and that crops recorded of unusual value are only grown "on paper," it is necessary to say that the following figures are not evolved from any fanciful theory or scheme by which the amount they represent might be obtained, but they express what has been accomplished, and this not by chance in any particular season, but as embodying the results that have been produced every season during the past seven years. In a word, the Mushrooms that have been gathered, weighed, and sold, and the amount that has been actually realised, can only be fairly represented by the figures now to be submitted, and any others would be incorrect. They are founded on the well-ascertained fact that a lineal yard of Mushroom bed in the open air yields produce of the value of 15s., and that the cost of production is 5s. per lineal yard. This, it must be remembered, is the average yield as ascertained by the crops gathered and sold during a series of years. Occasionally when an extraordinary crop has been produced at a time when the market price for Mushrooms was high the returns from beds have been 45s. per lineal yard. This is mentioned as evidence that no attempt has been made to estimate the average value as greater than it really is. And now the basis having been given on which the figures are founded, their accuracy can be tested by such facts as will be adduced for that purpose, and it will be found that the profits of a well-conducted system of Mushroom culture, which will be described, have not been over-estimated.

It should be stated that the average price of Mushrooms sold by auction in Covent Garden Market during the past seven years is just 1s. per lb.—that is to say, that this is the amount that has been received by Mr. Barter, after deducting salesman's commission, during that period. Occasionally, when very plentiful, only 8d. per lb. has been returned, but on other occasions the salesman's returns to the grower have been 1s. 9d. per lb.; the actual average is, however, as stated, 1s. per lb., and this simplifies the matter of calculation.

COST AND PROFITS OF MUSHROOM CULTURE.

It will be well first to refer to their culture on a small scale, or as confined to one bed $2\frac{1}{2}$ feet wide at the base and 30 yards long. "For making a bed of this extent," writes Mr. Barter, "twenty loads of fresh manure are needed. The cost of this at 3s. 6d. per load, the price at which it is delivered, is £3 10s. The cost of labour—a heavy item—for preparing the manure, making the beds, gathering and marketing the Mushrooms—indeed, everything, is £5 10s., or a total of £9 for the 30 yards. The value of the produce at 15s. per yard is £22 10s., and the manure when decayed is sold for £1 10s.—that is, twelve loads at 2s. 6d. per load, or just 1s. per yard run of bed. I therefore derive a profit of £15 from a length of bed of 30 yards." This, it must be remembered, is the profit that is maintained throughout the season from a series of beds reaching in the aggregate to about half a mile in length, the price being averaged, because actually realised, at 1s. per lb. The price obtained is often much higher, and a yard of bed frequently yields much greater weight than 15 lbs. of Mushrooms. For instance, a bed 20 yards long yielded 160 lbs. at one gathering, and another 25 yards long gave at the first gathering 76 lbs., the second 200 lbs., and the third 84 lbs., or 360 lbs. in three weeks; and the same bed continued productive for at the least five weeks longer. It is necessary to state these facts as showing that the value of a bed 30 yards long has not been exaggerated. It will not be inappropriate to submit a view of Mr. Barter's Mushroom grounds, from a sketch made in January of the present year. A glance at the engraving on page 325 will suffice to show that Mushroom-growing for market is no myth, and that ample scope is afforded for arriving at an accurate judgment relative to the costs and profit of the culture of the popular esculent on a large scale; there is no difficulty, therefore, in determining the

COST AND VALUE OF AN ACRE OF MUSHROOMS.

Remembering that the entire cost of each lineal yard of bed is 5s., and the value of the produce therefrom 15s., we have only to ascertain the length of beds that can be placed on an acre to arrive at their total cost and value. The beds, as has been stated, are $2\frac{1}{2}$ feet in width; but for accommodating the litter that is used for covering them, and for purposes of gathering, space has to be reserved between the beds. Allowing a width of 5 feet between each two beds, which is more than sufficient, it will be perceived that the beds will actually occupy one-third of the ground, two-thirds being reserved for working purposes, so that practically the width devoted to each bed is $7\frac{1}{2}$ feet, or $2\frac{1}{2}$ yards. There being 4840 square yards in an acre, that space will hold a length of 1936 lineal yards of beds $2\frac{1}{2}$ feet wide,

with 5 feet spaces between the beds. The issue is now simple.

	£	s.	d.
1936 lineal yards, at 15s. per yard	1452	0	0
Total cost of production, 5s. per yard.....	484	0	0
Balance	968	0	0
Deduct rent per acre.....£12 }	18	0	0
Also half an acre for preparing manure ... 6 }			
Actual profit	950	0	0

However remarkable, even apparently sensational, the above sum may appear, it is believed to be in no manner exaggerated. In order, however, to check the accuracy of the figures, Mr. Barter, in total ignorance of the amount per acre that had been thus ascertained, was requested to extract from his books the quantities of Mushrooms sold monthly during one entire season, with the extent of beds from which they were gathered. He obligingly complied, and the following is the return submitted, its accuracy being guaranteed by the cultivator. It will be seen that the only two months in which there were no returns are August and September, the latter being the Mushroom month in the open air. The season of cultivated Mushrooms thus commences in October and ends in July.

MUSHROOMS SOLD MONTHLY FROM 500 LINEAL YARDS OF BEDS.

	lbs.
October	362
November	460
December	1142
January	768
February.....	652
March	707
April	1283
May	1031
June.....	686
July.....	265
	7356

The above quantity was actually sent to market off a length of 500 yards of beds, and sold for £367 16s.: add to the total at least 50 lbs. disposed of at home for £2 10s., and further add 200 lbs. made into ketchup, for which the actual value is 6d. per lb., and we find the gross value of the produce £375 6s. from slightly over a quarter of an acre of land. Multiply the amount by 4, and we have £1501 4s. against the above estimate of £1452, which is, therefore, submitted as fair, and certainly not excessive. Here, then, is a great field for cultivators; so great is it, and so tempting must it be to those who possess manure and land to enter on Mushroom culture on a large scale, that it is prudent to point out a possible source of danger to those who are inexperienced in the work.

ANOTHER WORD OF CAUTION.

Evidence having been adduced in support of the statement that no vegetable nor fruit crop will give equal returns to the cultivator of a given plot of ground that Mushrooms will when cultivated intelligently and well, it becomes necessary to point out the inadvisability of those who have had no experience whatever in the cultivation of this crop entering on the practice on a large scale at the first. This, as has been shown, would involve a considerable outlay, and there is always a risk of failure following the first essay in a new undertaking. Although the details of culture will be stated as plainly as possible, and without the

slightest reservation on any point that may contribute to success, yet a little experience is requisite for the whole matter to be appreciated. A few "object lessons" are essential, and fortunately these may with slight risk and outlay be easily provided by at least a hundred thousand people in this country who have at their command every necessary for that purpose.

In Mushroom-growing a safe principle to be acted upon is for many to commence on a small scale at first, rather than a few to attempt the work on a large scale; then if the first effort should not be successful little will have been lost, while valuable experience will have been gained. Instead of one man who is inexperienced in the work purchasing manure largely and incurring much expense in labour by making half a mile of beds, let the thousands of those who have manure make beds from 5 to 10 yards in length as an experiment. The little labour requisite for this will not be missed; and even should the beds prove barren, and there is no reason that they should, the material can still be used for enriching the land. This is the system that the above-mentioned successful cultivator adopted, and that has also been pursued by market gardeners in the neighbourhood of London, with whom Mushrooms form one of the most remunerative crops. There is every encouragement for a great number of persons to attempt their culture on a small scale, with a determination to become competent, and what may be termed self-made Mushroom growers. There are "self-taught" individuals in every craft and calling, and not a few of these have become masters in their vocation, but their competency was not attained without effort and without reverses. He who faints at failures is not likely to rise above mediocrity, if he reaches it. It has been said of Carey the cobbler missionary, by whose unceasing labour the Bible was translated into sixteen languages, that after being, when a boy, confined to his bed for many weeks in consequence of a fall from a tree he had determined to climb, the first thing he did on recovering his strength was to "go and climb that tree." It is this spirit that should animate all who are engaged in any worthy occupation, and it is certain if they enjoy the blessing of health that they will sooner or later succeed in their object.

(To be continued.)

THE Journal has recently contained excellent directions for producing Mushrooms and also showed their value as an article of food. Allow me to supplement your notes by stating the best, the most nutritious, and the most digestible way of using Mushrooms. We all like them, but alas! how many cannot eat them fried or stewed without having to pay the sad piper, "indigestion." By the following mode of cooking them the most dyspeptic of your readers can enjoy Mushrooms without any fear of indigestion. Every cook knows how to make a beefsteak pudding; let her prepare her basin and pastry, but instead of putting in beef or any other meat, stuff the pie dish lined with paste full of Mushrooms cut in slices; season with pepper, and salt, add butter, boil the pudding two to three hours, and eat it by itself or with meat, and be thankful.—G. O. S.

PRIMROSES AT TYNNINGHAME.

My love for Primroses commenced in boyhood's days, for they were the first flowers I cultivated. The sight of one bloom brings back to me all the springtimes of a quarter of a century, and recalls scenes that can never again return. Different shaped, different coloured flowers call up before me different places and circumstances otherwise forgotten.

A few days ago fortune so favoured me as to enable me to visit Tynninghame in East Lothian, and while I saw and experienced much that will not readily fade from my memory, one thing stands

out more clearly than the rest, and that is the sheets of many-coloured Primroses that covered acre after acre of the grounds round the mansion. Such sights have visited me in my dreams; I have read of them, and wanderers in Surrey lanes have described them to me, but I never saw them till I went to Tynninghame last week. Curiously enough, although the place is completely overrun with them, Mr. Brotherston finds much difficulty in cultivating them—that is, the finer kinds, in the garden. Here, where few Primroses grow wild, I find very little trouble in growing them luxuriantly, and that in a thin hungry soil.

The herbaceous borders at Tynninghame are just now worth a visit, and are one of the great attractions of the garden. Mr. Brotherston has so often written so well on the cultivation of these plants that I need not describe them here. I only wish detractors of herbaceous plants could stand at the conservatory door and look down the long vista as I did. In autumn their appearance will be still finer.

I may mention one sight more. It is a melancholy one. It is the wreck wrought by the storm of October last. Great giants had fallen as if they were pigmies after standing unharmed the storms of centuries. Thousands such were to be seen everywhere, still Tynninghame is not left bare as is the impression generally. Indeed had the storm instead of clearing huge avenues made a judicious thinning the thousands would have never been missed. Even as it is Tynninghame is yet grandly furnished with fine old trees.—S. D.

APPLES.

LOCALITY has a great influence upon the successful cultivation of the Apple; tastes also vary considerably, and to these circumstances is probably due the partiality shown by some writers for particular varieties. I should perhaps be able to endorse all that "WILTSHIRE RECTOR" advances had I his climate and soil, and we northmen think that the sunny south has advantages that we are deprived of. In our locality it will be some time before Lord Suffield will oust the old favourite Keswick Codlin. With me Lord Suffield cankers badly. Last year the fruit after being gathered turned black and was useless, otherwise they were all that could be desired. The Codlin is free from canker, but our soil being heavy may perhaps account in part for the former's failure. Stirling Castle is not with us what "WILTSHIRE RECTOR" says it is with him; we can only use it for culinary purposes. Bienheim Pippin as a standard in the orchard, unattended until it had attained a large size, and then occasionally shortening the branches, proves to be one of the best we have—an Apple for all purposes. Warner's King grows like a Willow and cankers as fast as it grows, and is therefore condemned. Cellini is also going the same way. Whatever may be said of the New or Winter Hawthornden, I shall not part with the old friend for the sake of the new. I find them both of service side by side; there is not much to choose. Normanton Wonder, Wellington, or Dumelow's Seedling is one of the very best Apples in our locality, to us indispensable; but what of Tom Putt, and from where has it sprung? Dutch Mignonne (Copmanthorpe Crab, local), with us one of the very best of Apples in every respect. Hollandbury, left to itself as an orchard tree, is of the greatest service, and we prize it highly. Emperor Alexander produces most beautiful fruit. Yorkshire Greening and Cluster Golden Pippin serve us well, but the latter is subject to canker. It is very useful for sauce. As an orchard tree most seasons it produces a good supply. Norfolk Beefing is perhaps the best of all for keeping; with this variety we have little difficulty in having Apples all the year round.

I have not yet decided to give the first place of Ribston Pippin to Cox's Orange Pippin. To find Ribstons in perfection we must go to Herefordshire, they are there all that can be desired; but to have them passable in our northern climate they must be grown against a wall. Cox's Orange Pippin deserves all the praise it has received. It does well as a pyramid. I should have been glad to have tasted the Cornish Gilliflower with the Rector. I have been longing for that pleasure for some years, but here we can only get the bloom. The late Mr. Rivers said it is the finest flavoured Apple in cultivation, perhaps it was at Sawbridgeworth. I appreciate the notice of the Gravenstein; it has been a favourite with me for fifty years, and I wonder it is so little grown. The Summer Golden Pippin from a wall is all that can be desired, but the Irish Peach from a wall must have the palm among the earliest, and is not so well known as it deserves to be. I find Lewis's Incomparable in our locality a grand autumn Apple. Sam Young as a keeping Apple for winter dessert is of first-rate quality, and is appreciated. Why is it so seldom grown? I cannot remove such old favourites as the Margil, the Old Nonpareil, Golden Harvey, and others that have occupied a first place in my memory for the

fifty years past. Court Pendu Plat and Reinette de Canada must remain. The Golden Reinette in my estimation is one of the most valuable Apples I ever met with for our locality; healthy, a free grower, good bearer, good keeper, of the best quality, it can hold its own everywhere. I trust we shall hear more notes about Apples from other districts.—NORTH YORK.

ZYGOPETALUM CLAYI.

A FEW weeks since one of the most beautiful Orchids flowering in Mr. B. S. Williams's nursery at Holloway was a handsome specimen of the hybrid *Zygopetalum Clayi*, the finest example of this distinct and attractive form which we have seen. The hybrid was raised by Colonel Clay of Birkenhead five or six years ago, and was the result of a cross between *Z. crinitum* and *Z. maxillare*, partaking of the characters of both parents, yet combined in such a manner that it is quite distinct from either. It was first shown by the raiser at Manchester, April 27th, 1877, when it was certificated, and a similar honour was accorded for it at the Royal Horticultural Society's Exhibition at Kensington on May 2nd of that year, when a plant was shown by Mr. B. S. Williams. A specimen was also sent from Holloway to the recent Spring Show

of the Royal Botanic Society, Regent's Park, and for the third time in this country it was honoured with a certificate. This is a sufficient indication of the plant's value, for such general appreciation is accorded to few.

One excellent quality distinguishing this hybrid is its free yet compact growth as shown in the woodcut (fig. 64), which faithfully represents the Holloway specimen. The flowers, one of which is shown slightly reduced in the smaller cut, are large with broad purplish brown sepals and petals, and a fine broad circular lip blotched and spotted with rich purplish blue. Some of the racemes bear five or six flowers. The specimen figured had over thirty handsome blooms, and when in such condition the plant cannot be surpassed in beauty, at least in the genus *Zygopetalum*.—L. C.

THE CULTIVATION OF THE POTATO.

It must be supposed that "W. J. M." agrees with what was said at page 240, when he is compelled to so misconstrue the language used as to make it mean exactly the opposite it really does. If he will take the trouble to look again at the paper he ventures to criticise he will see that, so far from advising placing the under soil uppermost, as his garbled quotations would seem to



Fig. 64.—ZYGOPETALUM CLAYI.

indicate, great care is taken to keep it down until it is made into good soil, and that even then it is only sparingly brought up, and then liberally mixed with manure. The experiment at Glasnevin, where the experimentors showed decisively "how not to do it," seems to have been before your correspondent's mental vision when he expressed himself to the effect that he would leave such a subsoil alone. When it is considered that 2 feet of soil is certain to produce better results than 9 inches, especially when the subsoil is as close as asphalt, and that, by the process described, such may be made so, the leaving-alone policy will not appear a very enlightened one. When the work of centuries of worms, frosts, vegetable deposits, and partial cultivation can be artificially multiplied so easily and be so rapidly repaid, it is surely justifiable, and those who doubt the possibility of converting the subsoil have only to try it in the way recommended to make sure of succeeding. Leave it alone! No; we have reaped the fruit of our improvements too speedily and abundantly to take that advice. Even breaking it up and leaving it where it is, secures results worth all the trouble, and more.

We said "it is an easy matter having chats, and as easy having none," and pointed how to produce or be without them. This your correspondent converts into "having a few large tubers." We have never advocated the production of a "few large tubers," but have often shown how to have a full crop with no chats. Raising chats when "full-sized tubers" (that is the expression used) might be had, is what we have condemned; and we hope

to be numbered among the "thousands" who desire moderate-sized tubers.

"W. J. M." wishes to know whether the urine is taken just as it comes from the cowhouse. Yes; but it is, when possible, soaked into the ground before planting time, and not given to the growing crop. The "chemicals" referred to mean any chemical manure that may be used.

We hope no one supposed that advice was given to the effect that Potatoes should be put where they will be frozen to prevent them sprouting. It is only when the weather is mild that Potatoes sprout, not when frosty.

Your correspondent does not think there is any place in the British Isles where it is foolish to plant before April. I envy him. Six times in seven years our earliest Potatoes, planted in April, have been cut down by frost, or would have been but for protection, in May. Would it not have been foolish to have secured the cutting-down by frost of the whole crop by planting before April?—SINGLE-HANDED.

THE GLADIOLUS.—FAILURE AND SUCCESS.—As a lover of the Gladiolus, and one who has frequently through the pages of the Journal recommended its extended culture, I regret the tendency of the observations of "A NORTHERN AMATEUR" should be to discourage the growth of what he admits is to him still a fascinating and favourite flower. I have pointed out in your columns how I have attained fair success in its culture—how I have doubled, nay,

trebled, my limited stock of a few hundreds, and am every year adding new ones. I may perhaps at some future time repeat those observations; but would ask your correspondent to state more definitely the nature of his soil, situation, and, if he has no objection, the locality, when he plants or transplants, his system of doing so, the depth, exposure, and his system of maturation. Some of us may be able to then assist him with suggestions?—W. J. M., *Clonmel*.

OUR SHRUBBERY.

IN many establishments the shrubbery borders are of great importance, and looked upon by some employers as one of the principal features of gardens. Unfortunately in many gardens this department is greatly neglected, especially as regards the choice of plants. In nine cases out of ten there is a deficiency of flowering shrubs and trees, and what I wish now is to draw attention to a few that render our borders gay in the spring months. These, if planted judiciously amongst the commoner plants, would greatly relieve the monotony of ordinary borders. In forming new shrubberies a good selection of plants is indispensable, and if due consideration be given to the selection the shrubberies should be bright for several months in the year. The undermentioned are all beautifully in flower during April.

Amongst the most prominent are the Berberries, and *B. Darwinii* is now about its best. This is a first-rate plant for borders or in small groups alone; the branches appear to be weighed down with the quantity of flowers they have this year produced. The flowers are bright in colour, produced in clusters on the previous year's growth. When sufficient space is allowed for it to develop, bushes 5 or 6 feet high and 8 feet through can be obtained, and when seen covered with their pendulous orange-coloured blossoms they are very attractive. *B. stenophylla*, a garden hybrid, somewhat resembles *B. Darwinii*, the last-named being one of the parents, but is a fortnight or more later in flowering; it, however, is a useful variety, and deserves a place in any border. *Mahonia* (*Berberis*) *fascicularis* is a useful shrub, and is now handsome, the bright canary-yellow flowers being produced in clusters at the tips of the shoots. This is a plant suitable for planting in or near the front of a border. *M. rotundifolia* is nearly related to the latter, but has smooth leaves, and *M. Murrayana* is a good companion to the latter, but has large spiny leaves; the flowers are similar in size and colour. These make a grand display and look well at a distance.

Spiraea prunifolia and *S. prunifolia flore-pleno* are amongst the earliest of the genus. These are valuable acquisitions on account of their pure white flowers produced the whole length of the previous year's growth. They look remarkably well with evergreen shrubs or planted singly as specimens.

Pyruses are fine now. *P. Malus* and *P. Malus floribunda* are very pretty, the rose-coloured flowers being abundant. Following a little later is *P. baccata*, the individual flowers of which measure $1\frac{1}{2}$ inch across, are light rosy pink, and deliciously scented. The latter may be grown as bushes or standards. When grown as standards they appear well planted towards the middle of the border; they are also fine as single specimens. *Pyrus japonica* is well known. There are some varieties which far surpass the type. *P. japonica* var. *Maulei* is a little gem, and deserves to be planted extensively; is very free-flowering, and extremely dwarf. *P. japonica* var. *princeps* is very rich in colour, but not nearly so free-flowering as the former; and *P. japonica* var. *nivalis* is a valuable variety, with large white wax-like flowers.

Prunus triloba succeeds well trained against a wall; it does equally well planted out as a bush. Those on the wall will, of course, flower first; the flowers are double and soft pink. This plant is too little known. It is also useful for forcing. It is surprising how grand two or three of the common Cherries are just now, being covered with flowers. We have some in the borders here backed up with higher trees, and the effect is splendid whilst they are in flower. *Amygdalus persica rosea* is valuable for planting amongst larger trees and shrubs; the flowers are dark rose, and should certainly find a place. We must not pass the Forsythias, which have been in flower for some two or three weeks past. *F. viridissima* and *F. Fortunei* are both worth planting; they are also useful for forcing.

I am under the impression that the Ribes are not employed so much as they deserve for borders. *R. sanguineum* and its varieties are the most showy. *R. sanguineum* var. *atrorubens* has bright crimson flowers, and is very free-flowering. *R. sanguineum* var. *atro-sanguineum* has larger flowers but not so deep in colour; the leaves are also larger than the last-named variety. *R. sanguineum* var. *albida* bears flowers of a pinkish white colour, and is worth growing. *R. Gordonianum* has flowers of a reddish yellow tint. The above are the best of the sanguineum section, and the following are three good yellow forms:—*R. palmatum* I consider the

best, *R. aureum*, and *R. aureum* var. *præcox*, the latter of which bears the largest flowers, and, to add more to its value, is very fragrant.

Magnolia conspicua is seldom seen. Why this should be is not easy to imagine. It has been grand for the last two or three weeks, and will last as much longer. The flowers are pure white, of good size and substance, and deliciously scented. The free-flowering habit of this plant, together with the usefulness of the flowers, are qualities sufficient to recommend it to anyone. Good formed bushes are not to be despised as specimens in the open. *M. Yulan* and its varieties should also be included. The flowers of *M. Yulan* differ considerably from the former in colour, being marked with purple; in shape and size it closely approaches *M. conspicua*. *Cytisus albus* makes a good border plant; the long sprays of pure white flowers contrast favourably with the surrounding dark green foliage. I lately saw some large bushes of the common Furze, also the double-flowered variety, planted amongst Laurels, Aucubas, &c., and the effect was very imposing. *Amelanchier canadensis* is always appreciated when in flower, and now its beautiful white flowers are very conspicuous; this also appears well grown as single specimens. The above are only a few of the many neglected plants that should be more extensively cultivated. I have only mentioned those that are, and have been, in flower for some time past. A little later in the season I will note a few more as they come into flower.—W. K.

EARLY PEAS.

MY experience may possibly be of a little use to someone, for it is said, "In the multitude of councillors there is wisdom," although it is also said, "Too many cooks spoil the broth." In December, 1880, I sowed in a field Kentish Invicta and Suttons' Early Champion. Both podded well, and I commenced picking on the 3rd of the following June, which was very early for a field crop. Last November I sowed Ringleader, and a few rows near them of Kentish Invicta and Day's Early Sunrise a fortnight later. To-day (17th April) Kentish Invicta are in bud, and will be in flower in three more days. Day's Early Sunrise may be two days later, but the main piece of Ringleader will not flower for more than a week. My object being to obtain Peas for early market I shall discard Ringleader this year, and decide between Early Sunrise and Kentish Invicta when I pick them. I am growing William I. for seed this year, for I obtained the seed too late to plant for an early crop.—H. S. E.

QUEEN WASPS.

I REGRET that "C. T. H." (page 285) cannot understand my letter on page 260. It seems plain enough. The passage quoted can imply nothing else than that the fewer wasps in spring the more in autumn, as well as the converse. As there is never a year with no spring wasps, though none may be seen, there will be no numerous swarms to be accounted for in such years. The correctness of my statement is simply a matter of observation. As to my differing from Mr. Wood in opinion, what of that? He probably assumed the fact without having his attention specially called to its incorrectness.

Can any of your correspondents help me to an article in some scientific journal or in the proceedings of some society touching on this subject? The result stated, as far as my memory serves me, was somewhat as follows:—That in a year with abundance of spring wasps the writer had dissected two hundred, and found that they were all unimpregnated. Now I believe impregnation takes place in the autumn, and if so all these would necessarily be barren. Can the explanation be this—that females which have missed their chance in the autumn are the only individuals which made their appearance early in spring, while the breeding females remain dormant longer? If so, an autumn unfavourable to impregnation would be followed by a great show of queens and *vice versa*. The article in question appeared, I should say, from twenty-five to thirty years ago, but I cannot say where.

Perhaps some correspondent who has time and instruments would repeat the examination.—DUCKWING.

LA GROSSE SUCRÉE STRAWBERRY.—This is a far better variety for market purposes forced than Vieomtesse Hericart de Thury. The fruits being so much larger realise nearly double the price, and although it does not produce so many or so much in weight it pays better in the end. It is about four days earlier in ripening when both kinds are started at the same time. As regards quality La Grosse Sucrée is inferior to the Vieomtesse both in texture and flavour, but for market purposes this is of no consequence, and where

^a fine appearance is the principal object for dessert it is not easily surpassed early in the season.—W. H. DIVERS, *Burghley*.

PITCH PINE FOR LABELS.

I NOTICE that an objection has been raised against this wood on account of some difficulty in writing upon it. This difficulty has not come within my experience under the usual plan of writing on a perfectly smooth surface with a lubrication of moist paint, either with or without a dry coat beneath. If, however, the paint for writing on is allowed to dry there is indeed a great difficulty. I have found that pitch pine labels can be written upon with facility, and, granted the quality of durability in the wood, it appears to me practically equal in other respects to common deal. I have had a number made, and the label writer here likes the material for writing upon in the large italic letters necessary for reading from a distance. I send you a specimen of his work, which you will see is quite clear and clean-looking. Further, I send you a piece of the wood upon which a name has been written in running hand. It seems to be quite clear, and was written as easily, I think, as if on deal. In this case the paint is very thin, and the contrast of the writing with the wood is not quite so great as it would be with white deal, but if the label is more durable I should think that of the greater importance. The pencil used is of fair quality for drawing purposes, and is marked "H." But if slight difficulty should be found in writing, I believe that the trouble is worth taking if the result is durable.

I propose to try larch, which has been recommended; but for the present, from what I have seen, I am strongly inclined to use pitch pine, especially for large labels. It is cut into strips by the merchant, and when received is easily smoothed with a plane, being afterwards cut into lengths as required.—R. IRWIN LYNCH.

[The label received is 6½ inches long, nearly 2 inches wide, and half an inch thick. The writing is black, clear, and excellent, but the pitch pine is neither so hard nor so good of its kind as that sent by Mr. Wolley Dod, and the quality which we used many years ago, and eventually abandoned. We have found white deal far more easy for writing on than the hard-ribbed pitch pine, and the impressed letters of the former were at the expiration of ten years more legible than the surface letters on the latter; in fact, the names were perfectly distinct after being attached to walls in the open air for twenty years, while the wood twice painted before using, and the names written in moist paint, was quite sound. We have never found the wood of white deal decayed before the names were obliterated when the labels were not inserted in the ground. The label before us, which is not for placing in the soil, will last much longer than the name will, which is so well written on its surface; this, however, will last for some years, and the label is good, but is not hard pitch pine.]



MR. J. C. FORSTER of Leeds "would be obliged if any correspondent would give his opinion of *MATRICARIA EXIMIA AUREA CRISPA*, which it is said will shortly displace as an edging plant the popular Golden Feather. It is said to be more permanently and richly golden."

— A RECENT telegram from New York, says a daily contemporary, informs us that "it is estimated that two and a quarter million bushels of POTATOES have been imported this year, chiefly from Great Britain. The selling value is over a million and a half of dollars."

— MESSRS. FISHER, CLARK, & Co. have sent us samples of their WATERPROOF LABELS, which can be written on with ink or pencil, which the manufacturers of the labels state "will not wash out by the longest exposure to rain." They are made of stout paper with brass eyelets inserted, and appear to be admirably adapted for use by nurserymen when sending out trees, shrubs, and Roses to their customers.

— A CORRESPONDENT writes as follows respecting the

prospects of the FRUIT CROP IN THE SOUTH OF SCOTLAND:—"Notwithstanding the abundance of blossom on fruit trees many are not now very promising. Apricots, for instance, will not have one fruit swell in twenty. Plums I am afraid will be similarly defective, and unless we experience a few warm showers doubtless the other kinds of fruit will also be unsatisfactory. The value of rain when fruit trees are in flower is not much understood. Repeatedly I have noticed a warm shower of rain make all the difference between an abundant crop and a medium one."

— THE BRAINTREE HORTICULTURAL SOCIETY will hold their annual Exhibition in connection with the Essex Agricultural Society's meeting at Braintree on Wednesday and Thursday, June 14th and 15th. Prizes to the total value of £135 are offered in numerous classes for plants, flowers, fruits, and vegetables.

— IN Battersea Park, a short distance from the steamboat pier, is a magnificent specimen of a DOUBLE CHERRY, *CERASUS SYLVESTRIS FLORE-PLENO*, flowering most profusely, the branches being covered with masses of pure white double flowers. This is one of the most handsome flowering trees for shrubberies, and when in a suitable position upon a lawn where it can develop freely a beautiful specimen is obtained. An engraving of the variety was given in this Journal last year, vol. ii., page 401, which shows the characters of the flowers, and the freedom with which they are produced, admirably.

— MR. G. BOOTHBY, Louth, Lincolnshire, writes:—"A list of good varieties of double white Azaleas was recently given in the Journal, but one which I think the finest was not included—namely, *REINE DU PORTUGAL*. It has very beautiful double and pure white flowers, is rather late blooming, and is a most desirable variety. A correspondent also mentioned *Souvenir du Prince Albert* as being a very handsome variety. So it is, but I think *Sigismund Rucker* is superior to it for beautiful marking, also in shape and substance. I much prefer the double to the single forms of *Azalea indica*."

— IN striking comparison with the weather in London on Monday we learn that in the extreme north of Scotland the snowfall has been unprecedentedly heavy. In the neighbourhood of Fort William, Inverness-shire, the snow was 15 inches deep. All outdoor labour has been suspended, and it is feared that the storm will kill many lambs. On Monday afternoon there was a renewal of the snowfall. On Deeside 11° of frost have been registered. In the Shetlands the most severe snowstorm of the season was experienced on Sunday and Monday, when snow fell continuously for hours. Much fruit blossom is destroyed.

— WE learn from the schedule just to hand of the NEWCASTLE-UPON-TYNE BOTANICAL AND HORTICULTURAL SOCIETY that the summer Show will be held on July 26th, 27th, and 28th, when the usual liberal prizes will be offered in numerous classes. Plants are particularly well provided for; in the chief classes the prizes range from £12 to £2, and in the leading open class a silver eup is offered. The principal fruit class is that for eight dishes, the first prize being £8 and the Royal Horticultural Society's bronze Knightian medal, the second £4, the third £2, and the fourth £1. In the amateurs' and nurserymen's classes the prizes are proportionately liberal, the total prize money for the Show being £428.

— REFERRING to the TREATMENT OF HOLLYHOCKS, "R. P. B." writes—"This fine season has so advanced the growth of the plants that unless my named Hollyhocks are shifted into 9-inch pots they will be so root-bound as to be useless. That would be quite a serious undertaking, so I intend trusting to the weather continuing mild, and shall plant them out immediately. The greater number will be planted at the back of two herbaceous borders, each over 100 yards in length. The ground has been deeply trenched, and

before planting it will be deeply stirred again and a rich dressing mixed in where each plant is to be placed. The planting takes longer in this way, but we not only obtain the flowers better, but also in dry weather less water is required—an important matter with us. The plants will be protected in cold weather; a pot placed over each is a very efficient protector either from sun or frost."

— THOSE of our readers who derive recreation from fishing will find "DAVIES' HANDBOOK TO THE RIVERS AND BROADS OF NORFOLK AND SUFFOLK" acceptable. It will be published next week by Jarrold & Sons, 3, Paternoster Buildings, London. It gives a description of many inland waters, the beauties of which are not unknown to the great majority of tourists, and is accompanied by an excellent map of the rivers and broads of Norfolk and Suffolk.

— WE regret to record the sudden death of the Rev. JOHN G. NELSON of Aldborough Rectory, Norwich, who last Friday morning fainted, fell, and expired. He was the son of the Rev. Mr. Nelson who raised Phlox Nelsoni, and he also, following his father, raised a number of new dwarf Phloxes, which he handed to Mr. Ware, and they are recorded in his catalogue. He worked with Mr. Barr in arranging the new Daffodils, and has raised several valuable new varieties. Mr. Nelson never made a penny from his raising of new plants. His grand achievement (Lachenalia Nelsoni) he distributed amongst his friends with a free hand. Mr. Nelson's retiring disposition kept him, as it were, apart from the outer world. His love of plants from infancy was so strong he resolved to be a nurseryman, and went to the Clapton Nursery, where he remained till he felt commerce was not his vocation, and he entered the Church instead, but continued the pursuit of his first love. He enjoyed the esteem of all who knew him, and his loss will be mourned and his memory cherished by hosts of friends.

— WE are informed that the OXFORD ROSE SOCIETY will hold its thirty-first annual Exhibition in the "Lime Tree Walk," Trinity College Gardens, on Thursday, July 6th.

— MESSRS. VILMORIN, ANDRIEUX, & CIE. of Paris have announced the distribution of seeds of a new TUBEROUS-ROOTED VINE from Cochin China, which is said to be absolutely similar to the tuberous-rooted Vine of the Soudan, mentioned by the late M. Lécard in his journey in the centre of Africa. Messrs. Vilmorin state that very probably they both belong to the same genus botanically, and that as Cochin China is more accessible than the Soudan, they are convinced that, if the attempts which are being made in Europe justify the hopes which have been formed on tuberous-rooted Vines, it will be easy to procure rapidly and cheaply a sufficient quantity of seed to enable it to be extensively cultivated in France.

— THE CHISWICK HORTICULTURAL SOCIETY'S SUMMER EXHIBITION will be held in the Royal Horticultural Society's gardens at Chiswick on Thursday, June 22nd, when numerous prizes will be offered for plants, cut flowers, fruit, and vegetables. Special prizes are also liberally contributed by friends of the Society, especially by the following:—The Marquis of Bute for a box of York-and-Lancaster Roses; Mr. James Aldous for stands of cut flowers; Messrs. Fromow & Sons for Ferns; Sutton and Sons for vegetables, and Carter & Co. for Peas; C. Bown, Esq., B. Hardy, Esq., and J. Starling, Esq., also offering prizes for plants and flowers. From the Society's financial report we learn that the receipts were £260 3s. 3d., leaving a balance to the Society's credit of £36 5s. 8d.

— WE are always glad to see efforts made with the object of POPULARISING HORTICULTURE, and hence notice an influential meeting held last week at Somerby, near Grantham, for forming another horticultural society in that district, not antago-

nistic to, but rather as an adjunct of the Grantham Society, that has done such good work in distributing fruit trees and seeds in the locality, a practice that is most commendable, and might be more generally adopted with great advantage. The Chairman of the meeting, the Rev. W. Nash, stated "he was there that evening partly in fulfilment of his duty as Rector; but, he hoped, principally because he thoroughly believed the work they were about to inaugurate was one that would be productive of much good amongst the working classes, and give them in their spare hours an opportunity of cultivating a deep interest in God's works, the beauty of which was most forcibly felt in the culture of flowers and fruit." There are many other clergymen willing to aid in such worthy objects, but not all districts are fortunate in having a gardener so skilled and so intelligent as Mr. Mann to take the practical management of these local organisations.

— AT Penzance, April 13th, Mr. C. C. Ross, M.P., presided over a large number of market gardeners and buyers and others interested in the CARRIAGE OF GARDEN PRODUCE TO THE NORTH OF ENGLAND, to hear from Mr. Stevens (of the firm of Marshall, Stevens, & Co. of Liverpool) details of his proposal of carriage by steamers from Penzance to Garston Dock, and thence, *via* London and North-Western Railway, to all markets north of Birmingham. Mr. Stevens stated that he was prepared to run three or four steamers a week from Penzance to Garston during the season, the rates to be not more than from Jersey, and at least 10s. a ton less than the railway at present charge. A resolution pledging support to the scheme was unanimously carried. In proposing a vote of thanks to the Mayor for presiding, Sir John St. Aubyn, M.P., said the railway interest in the House of Commons had increased, and was increasing, and ought to be diminished. Those who had experience of railways knew that unless there was opposition they would never reduce their rates or give the public accommodation. The market gardeners were perfectly justified in the action they had taken.

— A "NOR'-EASTER" writes:—"We are removing hardy plants from brick frames as rapidly as possible, to be immediately filled with BEDDING PLANTS. The early cuttings were placed in the propagating bed and transferred to boxes when well rooted; another batch, inserted thickly in boxes the third week of March, will be transferred as rooted cuttings to these brick frames, but they are kept in cool quarters for a week or so before being disturbed. The compost we use is one part of Mushroom-bed manure to three of loam spread 3 inches deep over the bottom of the frame. The frames are kept closed for ten days or so, and in cold weather are covered with mats at night and day. When the time for planting arrives we have large, healthy, well-rooted plants, prepared at the very least amount of trouble consistent with good results. Pelargoniums are grown in pots, some as large as 5 inches in diameter. I find a large well-grown plant pays better than half a dozen starvelings, which require six weeks at least before suitable for placing out."

— MR. PETER HENDERSON writes as follows in the "American Gardener's Monthly" on the "ROSE-GROWING CRAZE":—

"Many persons are unconscious of the extent to which the culture of Roses is extending in and around our large cities. In consequence of the extraordinary prices obtained for Rose buds during the past two or three years not only have the regular florists used their large profits in extending their greenhouse structures for that purpose, but the fabulous reports of the profits of Rose-growing has excited the cupidity of many capitalists in the vicinity of New York, Boston, and Chicago. These men have an abundance of means, and begin on a scale usually at which the ordinary florist, who had to climb his way up, ends; so that we have already in the vicinity of New York at least a dozen establishments for the forcing of Rose buds in winter, owned by men who count their capital by millions. These gentlemen, of course, know nothing practically about the business, relying altogether upon their gardeners for success—for who ever heard of a millionaire florist? Whether they do succeed or not in making a profit of a few thousand

dollars a year is not vital to men who count their income by the hundred thousand; yet it is curious with what interest the rise or fall of a few cents in the Rose market is regarded even by them. New Jersey has more than her quota of these millionaire florists. Already we have four in Madison, one in Summit, and two in Orange (New Jersey), and it is said that there is as much interest manifested by them in the prices at which, in the technical slang of the flower shops, "Cooks," "Jacks," "Mermets," and "Perles" are quoted in Broadway as is evinced in Wall Street in "Wabash," "Lake Shore," "Erie," or "Central." It is true that one at least of these gentlemen gives all the profits that accrue from his Roses to charitable purposes; but it is feared that he has few imitators among his compeers in this particular. Only last week a gentleman entered into negotiations with a greenhouse builder in Jersey City to construct at his country residence, some sixty miles from New York, nearly 15,000 square feet of glass as a "beginning," which furnished, heated by hot water, and stocked will cost not much less than 15,000 dols. It is true that many of these amateur florists will get their fingers burnt, and will not only never realise a dollar on their investments, but will work at a loss, for an oversupply may quickly change the fashion, for assuredly when the plebeian Smiths or Browns can buy Rose buds suited to their limited means the Flora McFlimseys will turn up their aristocratic noses even at the Rose."

CORDON FRUIT TREES.

IN the midst of the abundance of all kinds of fruit which we had last summer, a gentleman, the owner of a small garden which had been made some twelve or fourteen years, came to me with the plea that he was without fruit, and would be glad to know what could be done to render his garden worthy of the name, which under the circumstances he was doubtless right in considering it was not. Two of the most important items of advice given by way of remedy was to protect Peaches and Nectarines upon walls with an unheated glass house, and to plant cordons of more hardy fruits against every other portion of wall space available, and also away from walls around the quarters of the garden; or, if other trees were already established there, to make three or four rows of cordons 6 feet apart, training them upon wire strained upon posts at either end of each row.

Although the garden in question was only a small one that was kept in order by a couple of men, yet the advice given would be equally applicable to the largest garden with the palpable addition of more trees in proportion to its size, for the single cordon fruit tree is emphatically the best of all forms for every garden. This self-evident and most important fact obtains recognition very slowly, and yet the term of cordon precisely as applied by us to fruit trees now has been before the horticultural world for thirty years. Why, then, has the value of the system and its adaptability to all gardens, all positions, all climates where fruit will grow not sooner been seen and turned to account? Because it is so easy and so simple. This certainly must be the reason, for it is impossible to suppose that prejudice or ignorance would bar the way of real progress. No doubt the change from the old-school life business of elaborating a huge tree with its tiers of horizontal "gun barrels" to bear fruit for another generation to the rearing of cordons from which really fine fruit may be had in a couple of years was too great, and its promise too high, to be readily turned to account.

Proof must be had before a system so entirely revolutionary in character could be expected to make its way among us. It has been put to the test in many gardens now, and has proved so successful as fairly to exceed our expectations. The doom of monster "horizontals" is certain. It is undoubtedly true that many such old trees were heavily laden with fruit last year, and that the old boast of bushels instead of dozens of fruit was fully sustained; but we must not be misled by a single year of abnormal abundance, for it is plain that the only safe test lies in the results of a reasonable number of consecutive years. Take the last six or eight years, and how many of them can fairly be claimed as fruitful years for trees under the old system or the new? The entire number would contribute to swell the tale of the cordon's triumph, but could we find another to add to last year for the horizontal's? Often have I heard lamentations over grand old trees that year after year had borne no fruit, and although grafting as a means of renovation has been advised, yet it is not often that a remedy involving the mutilation of branches that look so very much as if they ought to bear fruit is applied.

My recent praise of palmette verriers must not be considered to clash with all that can be said in favour of cordons. Palmette verriers are useful trees in gardens sufficiently large to afford space for them—not by any means to the exclusion of cordons, but rather as supplementary to them, and worthy of a place as exemplifying another branch of the modern system of fruit culture. The palmette verriers which I planted against a west wall

in 1870 have not yet quite covered the wall space allotted to them, nor have some of them yet borne much fruit; but they are yearly growing in beauty and utility, and form one of the most striking features in the garden. The cordons planted on the east side of the same wall three years later have with few exceptions filled their space, and bear fruit regularly notwithstanding the unfavourable aspect. Without them I should often have been at a loss for Pears, and may usefully repeat here a sentence written about them two years ago—"There stand the huge pyramids, each of them large enough to bear a bushel of fruit, and yet the crop is lost year after year; while the little cordons upon a wall facing due east go steadily on year by year bearing fruit, which becomes finer and more abundant as the trees gain size." It is not, of course, intended to assert that every cordon has an annual crop of fruit, but there is always fruit upon so many of them as to warrant the assertion that with some few exceptions fruit is to be had every year from them. Again this spring blossom is abundant upon most of the cordons, and the results of the last eight years justify me in saying there will be a fair average crop of fruit. It is this certainty of fruit that renders cordons of such value. Again and again when the large trees upon walls and in the open garden and orchard have failed the cordons have kept the supply unbroken.

It is high time that the disparaging remarks about the dozens

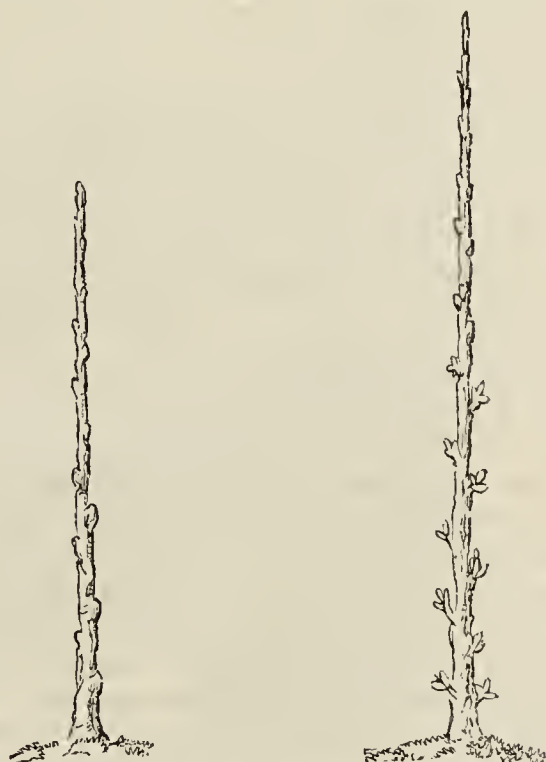


Fig. 65.

Fig. 66.

of fruit which cordons bear should be met and answered. Taking the early summer and autumn Pears, and bearing in mind for how short a time they continue good, a few dozens of really fine fruit are ample for the wants of ordinary establishments. Bushels of this class of Pears are not usually required. Summer Doyenné, Citron des Carmes, Beurré Giffard, Jargonelle, Summer Beurré d'Arenberg, Desiré Cornélis, Colmar d'Été, Williams' Bon Chrétien, Beurré de l'Assomption, Beurré d'Amanlis, Madame Treyve, Doyenné Boussoch, and Fondante d'Automne all come under this category. One or two cordons of each ought, therefore, to afford an ample supply of fruit. Ample provision of the fruit of later sorts is had by planting a few more trees, and considering the quick return for capital expended in their purchase the cost is unimportant. Strong maiden trees can be had for 12s. per dozen, and cordons two years old with blossom buds only cost 6s. a dozen more.

In the accompanying woodcuts fig. 65 represents a maiden tree one year old, to be shortened by about one-third as soon as the leaves fall in autumn; fig. 66 showing a cordon tree two years old, to be shortened by about one-fifth in autumn. — EDWARD LUCKHURST.

(To be continued.)

THE KEEPING PROPERTIES OF THE CHAMPION POTATO.—There is no greater admirer of this Potato than myself, yet, from several years' experience, I am reluctantly obliged to confess I find it almost useless after March for kitchen purposes owing to black patches or lumps that ultimately extend all over it; yet, strange as it may seem, this is not disease, for decomposition does not follow

immediately. Nor can any external examination detect it, except slicing off the skin. Last year I planted some of this class of tubers in May to test their germinating properties, and found they grew well and produced sound tubers. I spoke to several gardeners and farmers here, and the experience of all agreed with mine. Do your English or Scotch readers find this result? and is there any remedy? Would not the point as to whether this is different from the ordinary Potato blight be well worth the attention of the Scientific Committee of the Royal Horticultural Society? If there is a remedy it would be worth millions. I am about to consign a quantity to the manure pit.—W. J. M., *Clonmel*.

ORCHIDS IN APRIL.

THE work of this month is a continuation of that of last month, the heat and humidity of the houses being progressively increased. The following are amongst the most noticeable in bloom.

Anguloa *Clowesii*, *A. cburneum*, and *A. Ruckerii* are now producing their flower spikes, and should have fresh material added into which their new roots can extend. *Aerides japonicum*, with its greenish white flowers spotted with rose, is in bloom, also *Aerides rubrum* with its rosy carmine flowers. These both thrive in cool quarters, and should be grown near the glass. *Camarotis purpurea* with its numerous beautiful rose-coloured flowers is in fine condition, and will remain in beauty for about three weeks. This must be kept in the warmest division, and requires plenty of water.

Calanthes.—The deciduous *Calanthes* should be potted at once, not giving them too much root room, as we find they do better and make larger pseudo-bulbs in small pots or pans. The compost should be loam, peat, and cow dung well mixed. The plants should be placed on shelves or suspended near the glass, and watered sparingly until they begin to form roots, after which they ought to have a more liberal supply of water. *Cattleya citrina* with its charming Jonquil-scented yellow-coloured flowers is blooming at present. This succeeds well with the *Laelias* on a block. *Chysis bractescens* is in flower, and is a good showy plant, bearing from five to six white flowers blotched with yellow in the centre, and continues attractive a long time. *C. Liminghii* is showing its creamy white rose-tinged flowers. This will require more water now as it is growing. *Cypripedium hirsutissimum* with its fine flowers, with green dorsal sepal and lip and purple petals, is beautiful now. This *Cypripedium* succeeds best in the cool house.

Dendrobium Dalhousianum is a magnificent species, bearing from six to twelve large flowers on a pendulous spike, is now blooming. The flowers are clear yellow tinged with rose, and with two crimson spots on the lip. It thrives best in the East Indian house. *D. Devonianum* is producing its charming flowers, which are of a creamy white colour tipped with purple, the lip being beautifully fringed and marked with two large deep orange spots. This should have a liberal supply of water, as the pseudo-bulbs very soon shrivel if allowed to become dry. *D. Farmeri* with its white rose-margined flowers and a pale yellow lip is in fine condition, as is also *D. Farmerii aureum*, resembling the preceding, with the exception of the flowers being entirely yellow. *D. fimbriatum* is displaying its graceful spikes of fine yellow fringed flowers. *D. F. oculatum* is also bearing its long drooping racemes of flowers, which are like the former, but with a dark blood-red spot near the base of the lip. *D. primulinum* is very free-flowering and is finely in bloom, and thrives well either in a basket or on a block. *D. Jamesianum* is flowering well in a cool position, and will remain in beauty for a long time. It should always be kept in the cool house.

Epidendrum crassifolium, having an irregular spike bearing a profusion of lovely rose-coloured flowers, which last a long time in perfection, is very attractive. *E. vitellinum* with brilliant orange-coloured blossoms is very striking. It is a cool-growing *Epidendrum*, delighting in the shady *Odontoglossum* house with a plentiful supply of water during growth. *E. vitellinum majus*, a finer variety of the former.

Laelia cinnabarina has fine spikes of cinnabar-red flowers and an orange-yellow lip striped with red, is now finely in bloom, and will continue for about a month in full beauty. This thrives well in the *Cattleya* house. *L. flava* somewhat resembles the preceding, but bears from six to ten canary-yellow-coloured flowers.

Vanda caerulea is a curious little Orchid now in bloom, bearing from fifteen to twenty delicate pale blue flowers, which last a considerable time. It thrives best on a bare block.—ORCHIDIST.

INSECTS ON PLANTS IN POTS.

ALL plants when grown in small pots are much valued in most gardens, as they may be used in such a variety of ways and they are most convenient for all purposes; but nothing looks worse

than small plants in bad health or infested with insects, and it is the latter which destroy their pleasing appearance in many instances and cause them to be unhealthy as well.

Many plants in pots are much injured through earthworms being present in the soil. Sometimes these are introduced with the soil when potting, and in other cases they creep in when the pot is standing on soil. A little soot mixed with the soil before using checks them, and soot water applied to the roots occasionally will prevent them doing much injury. Lime water is sometimes used, but it is not so fertilising and does not suit some plants so well as the soot. All plants that are not to be potted this spring should have their roots and drainage attended to. A good plan is to fill a two-gallon pail with water; add 2 or 3 ozs. of soot to this, and immerse the pots in it for five minutes. Few worms will escape then.

Insects on the leaves are very destructive. Sponging will clear away and destroy them all, and it is this plan of working I wish to recommend, especially for fine-foliage plants. They do not need to be sponged daily, nor yet every month, but if once thoroughly cleaned they may not require more than an occasional syringing for three months or more. The great object is to have all plants cleaned once thoroughly, then keep them in that thriving state. There is no difficulty nor great labour in doing it. It is only when plants become thoroughly dirty and are neglected until insects have taken possession of every leaf that they cannot be readily cleaned. If time cannot be devoted to the cleaning do not grow so many plants. In such a state they afford no pleasure or profit. It is much better to have two dozen clean healthy plants than a hundred infested with insects. Sponging in the first place and syringing afterwards constitute my cure and preventive. Now is the time when all this must be attended to. Soon there will be young growths, and the colour and strength of these can only be maintained by keeping them clean and healthy.—A KITCHEN GARDENER.

SEEDLING OXLIPS.

FOUR out of five of my seedlings from an Oxlip have flowered, three plants producing single flowers, one a flower from an umbel, the only one developed at present. The remaining plant is not in bloom yet, but flowers will be produced from an umbel. I have now thirteen plants of Oxlips. All this spring produced single flowers in the first instance, then they sent up umbels. I have never seen the Cowslip producing single flowers.—A. FITCH.

[We have never succeeded in obtaining fertile seed from the true Oxlip. It is evident that in your case the seed was so, and that in some measure it reproduced the Oxlip, for one of the specimens you have sent has all the characteristics of that form both in flower and foliage, while the others are true Primroses.—*Ed. J. of H.*]

CURRENT NOTES ON PEACH CULTURE.

OUR late Peaches under glass are well set, and as others will doubtless be in the same condition with the young growths starting vigorously, it may, perhaps, not be out of place to discuss the question of thinning and pruning. "Pruning!" someone will say, "who would prune a Peach tree in April?" I, for one, do; and here it may be stated that as the fruit is gathered in autumn the shoots likely to be of no use are cut out, and the benefit of light, air, and heat to effect the thorough finishing of the wood secured. That is all the pruning the trees receive until the shoots have commenced vigorous growth. Many of the buds seen to be useless are removed early. Now the trees are examined, the strongest and best placed shoots selected, and those not required are cut back to a growth at the base. The others are thinned to the number required to fill up spaces. The growing points of shoots on which a fruit is not found are also cut back to the shoot immediately above a fruit, and the future bearing wood kept by that means as nearly as possible to the central axis of the tree. When that has been done pruning is finished.

Now as to the matter of thinning. That is a matter which must be left entirely to the judgment of the cultivator, and is chiefly dependant on the requirements of the family. In my case I leave more shoots than I did a few years ago, because the fruit produced was larger than my employers wanted, at the same time that a greater number of fruits would be acceptable; consequently, I have increased the number one-third and reduced the size of the individual fruits. I have a brother of the craft who annually shakes his head, prophesies "nae froot next year;" but he, like many more who believe in overcropping (so called) rendering a tree unfruitful, forgets that a well-tended tree will if well cropped only produce fruit of smaller size, according to the number left, without affecting its fruitfulness the coming season. A healthy

tree will not allow itself to be overcropped. It will develop healthy shoots before the fruit, however thickly they may be placed, make any great call on the tree. Afterwards it is merely a matter of heat, sunlight, and air, and heat, moisture, and necessary food in the soil, when the tree will show that the crop has been too large alone by the smallness of the individual fruits.

Here it would be well to note that the more numerous the fruit on a tree may be the greater quantity of food will it require. Everybody knows that two trees growing together under similar conditions in all ways except in the matter of size of crop exhibit a very striking difference in the results. While the thinly cropped tree has fruit of large size and keeps a healthy appearance, with comparative immunity from insect pests, its neighbour will be brought to a standstill, its leaves lose their healthy colour and be infested by red spider, the fruits stop swelling and either become prematurely ripe or fall. Both trees may have the same amount of food and the same treatment every way, but it is forgotten that the one which bears the larger crop requires very much more than its neighbour. Potash salts, especially, in greater quantity are what the highly worked tree requires; but I would not, nor do I, confine heavily cropped trees to a regimen of potash alone as a means of bringing the fruit to a healthy maturity; I would include nitrogenous matter and superphosphate to act their parts. I have

added lime, but begin to suspect it is useless on our soil; others may, and will find it a necessity. I am not in a position to secure urine as a fertiliser, so strongly recommended by "SINGLE-HANDED," but I do not think that we are confined to sulphates for our potash. Chloride of potash is a readily soluble manure, though perhaps it is not always possible to obtain it as pure as desirable. If the superphosphate is of mineral origin an addition of bone meal will be found advantageous, and I use sulphate of ammonia in preference to nitrate of soda for fruit trees. Bearing these facts in mind and acting on them, the question of overcropping may be dismissed. It is when the fruit calls for its appropriate food and no food is at hand that a tree fails. Treat it intelligently, and you may either allow a heavy crop to mature or a small one without damage to the tree itself. I may say that the fruit is thinned as much as wanted just now; as soon as we can see that the fruits have been properly set all superfluous may be removed.—B.

SPRING FLOWERS.

It is pleasing to read the interesting accounts in our Journal of the spring-flowering plants that are rising in interest among the cultivators and admirers of the outdoor garden. I know none



Fig. 67.—Mr. BARTER'S MUSHROOM GROUNDS. (See page 317.)

more interesting and beautiful than the Corydalis; they were very beautiful during March. The Corydalis can be made to do good service for both in and outdoor decoration. *C. bulbosa* makes a pretty edging plant in the flower garden at the roots of trees, peeping up among the grass by the walksides in the rockery. Perhaps the finest of the race is *C. nobilis*. It is a fine plant for culture in pots or as a single specimen in the border; but to be fully appreciated it must be seen in a mass. *C. lutea* is a charming plant, and is worthy of more extensive cultivation than it is at present receiving. *C. albiflora* is a very showy plant, its curious coloured flowers and glaucous green leaves have a very pleasing effect. *C. Hallerii* has fine foliage; the beautiful white flowers rising above have a pleasing effect, and in my estimation is one of the finest spring-flowering plants we have, but it must be seen in quantity. *C. lutea*, common as it is, is full of interest, locating itself on old walls, spreading everywhere. It is very beautiful in the spring and summer, becoming in time quite troublesome by the rapidity of its increasing. All the species are very desirable for the rockery and border and other places, and will well repay the cultivators for any care they may bestow upon them. They are readily increased by seed sown as soon as ripe in light compost, and by dividing the plants in early autumn. —VERNA.

FERTILISERS.

ALLOW me to express my thanks to "SINGLE-HANDED" for the reply on page 284 with which he has favoured me. His

answer, if it has not quite satisfied my doubts, has at least given to me, and probably to many others as well, much to think about. It has also shown me that I cannot have perfectly expressed what I wished to say. Unfortunately I have mislaid the number of your Journal in which my letter was published, but I certainly did not intend to imply that I doubted whether the addition of potash to stableyard manure might often be useful, though I felt uncertain whether it should be considered as so necessary an ingredient in artificial manures as nitrogen or phosphoric acid; or, indeed, whether such an addition of potash to stableyard manure, as that which "SINGLE-HANDED" names, was to be recommended without qualification for an ordinary rotation of garden crops.

"SINGLE-HANDED" says that "he thought that with nitrogen and phosphoric acid scientific men were agreed that potash should be associated in a generally applicable manure," and, of course, if he is right in this opinion my question is answered; but if, on the other hand, I can show him that Voelcker, on whose authority he chiefly—as I do also—relies, manifestly must differ from him in his views on this point, I am still left in doubt. I should have been less surprised than I am if he had referred me to Ville, who, in his recipes for artificial manures, makes potash a larger ingredient than any other substance, excepting lime.

In his annual report to the Royal Agricultural Society, published in 1865, Voelcker says—"Should potash be found to have a decided beneficial effect upon some of our crops, which I think is likely to be the case under particular circumstances, &c." The italics here and below are not in the original. "Experiments on

the effects of potash on *light sandy soils usually deficient in that alkali* can alone decide whether or not potash can be *economically* used as a manuring agent. The inquiries I made in Germany respecting the experience of farmers who tried the crude potash salts of Strassfurt, do not enable me to say positively that they had a decided beneficial or contrary effect. The fact is our experience is far too scanty for deciding this question."

In a report dated February, 1867, on field experiments with crude German potash salts Voelcker says—"These salts have been tried in Germany during the last three or four seasons on a variety of crops, sometimes with apparently marked beneficial results, at others without producing any decided favourable effect. This contradictory record of experience appeared to me to result probably from the great variation in the proportions of available potash which we know to exist in soils of different characters;" and he sums up the experiments which he then made with this conclusion—"It would, however, be rash to decide, on the strength of a single series of experiments, that the artificial supply of potash, unfortunately as it has proved to be in the case before us, is useless under all circumstances. I therefore wish to suspend my judgment on the practical utility of this and other cheap forms of supplying potash to the land until I shall be in possession of more extensive and reliable practical evidence than at present."

As it might be supposed that the use of potassium salts as manure may have obtained a more successful application since the date of the above report, I may say that repeated failure of this manure, to whatever cause due, has continued to the present time; but at present we are busied with Dr. Voelcker's views on the subject.

Again, in a report published on 1st July, 1867, he says—"Last summer was rather too wet and not hot enough for Mangolds; this makes it appear that in clay soils in a good agricultural condition the addition of potash salts . . . to a good dressing of dung and superphosphate does more harm than good to Mangolds. It follows, evidently, from these experiments and observations, that in considering the efficacy of potash salts as a manure for Swedes not much reliance can be placed on the increase of 30 cwt. of roots per acre, &c."

"The Potatoes (York Regents) were planted on the 2nd April, and were well up on the 25th May. The crop was dug on September 14th. Produce, with potash salts 10 tons per acre, with 4 cwt. of crude potash salts also 10 tons per acre."

"It is but right to state that the field in which the experiments were tried had been *dunged two years previously, and had again received a good dressing of rotten dung for this*. It, therefore, was evidently in too high an agricultural condition to give the potash salts a fair chance of exerting any beneficial influence upon the Potato crop."

Judging from these remarks, especially the last, I do not think that Dr. Voelcker would give the same recommendations as "SINGLE-HANDED" gives for the treatment of stableyard manure either for horticultural or agricultural purposes. At the same time I am constrained—nay, I am glad, to admit that Voelcker in summing up the results which gave occasion for the last quoted report goes further in the direction that "SINGLE-HANDED" takes than his words which I have quoted would have led me to expect. He says, in fact—"On the whole the preceding experiments furnish practical evidence that the application of crude potash salts in conjunction with superphosphate materially benefits root crops grown on *light and poor soils*, which we may suppose to be naturally deficient both in potash and available phosphoric acid."

Though, therefore, on the whole I am obliged to conclude that Voelcker must hold very different views from "SINGLE-HANDED" on the course which the latter advocates in respect of the use, of the abundant use, of potash salts with dung or with general artificial manures, I am myself far from asserting that the latter is wrong, and I recognise in him a scientific as well as practical teacher, from whom I am a very grateful, if a troublesome—INQUIRER.

P.S.—I leave untouched for the present the other point raised by me—viz, the form in which potash is absorbed by plants, as this communication has spun out to such a length; but I will ask you to give me space to recur on a future occasion to this and to some other questions raised by your article of the 9th March on "Fertilisers and their Use."

THE following printer's errors occur in my last communication on page 284, and as they are rather important I would beg to be allowed to call attention to them, otherwise readers may be misled. In the second paragraph the following occurs—"Many thousands of acres, however, contain no more than 1 per cent." This should have been 0.1 per cent. The next is where I am

made to say that a ton of farmyard manure treated with 4 lbs. of sulphate of potash is equal to ten not so treated. Two was what was written, but had been mistaken by the printer for ten—possibly my fault.—SINGLE-HANDED.

LOW TEMPERATURES IN IRELAND.

ON the nights of the 9th and 10th inst. our thermometer here registered 5° to 3° below freezing point respectively. Our instrument is 3 feet from the ground and about 100 feet above sea level. We have an unusual show of fruit blossom this season, Plum, Damson, and Cherry trees being covered with bloom, while Pears both on walls and open standards are very promising; but I am very much afraid that after such frosts the fruit crop will be disappointing. Potatoes growing on a south border, which runs parallel with a wall 15 feet high, are blackened, as likewise are herbaceous plants, such as Spiræas, Bocconias, Polygonums, Dielytras, &c., as also the young growth of the beautiful tree *Pterocarya caucasica*.

The following were the readings taken by Dr. Dorbireck at Col. Cooper's observatory, 132 feet above sea level:—April 9th, minimum on grass, 25.0°; in shade, 31.0°. April 10th, minimum on grass, 27.3°; in shade, 31.0°—M'PHAIL, *Mackree*.

NOTES FROM MY GARDEN IN 1881.—No. 4.

HERBACEOUS AND ALPINE PLANTS.

THERE are several advantages to be gained by those who are the owners of small gardens by the substitution of the mixed border style of gardening to the bedding-out system, not the least being that, no matter what the character of the summer may be, they are sure to have some pleasure out of the garden. Even in 1879, that *annus mirabilis* in our gardening records, when there was nothing but a "yellowy greenery" to be seen in beds intended to be brilliant and gay in colouring, there were many plants in the mixed border which gave real pleasure and defied the deluge of waters to spoil their beauty; and therefore in this record of 1881 I would desire again to say a word in their behalf. I do not—cannot—pretend to be an authority in these matters. My space is too limited to enable me to grow collections of any genus, and I must be therefore contented with selections instead. For the same reason I cannot pretend to grow masses of flowers or quantities of any particular kind. I must cut my coat according to my cloth, and if it is rather short measure the misfortune, not the fault, is mine; and I shall in writing of them just mark those which have done well or for some exceptional cause deserve notice.

The *Androsaces* I have found a difficult genus to do much with, but last season three of them at any rate succeeded. *A. carnea* has, I hope, established itself, and with it the variety called *eximia* from Mont d'Or in Auvergne, which seems to be more robust. *A. lanuginosa*, which has indeed always done well with me—the shoots either die off or are cut off each year, and a large number of the woolly tufts arise from the heart of the plant, and last season were covered with their delightful little rosy-coloured heads of flowers. The newer species, *Androsace sarmentosa*, seems to be very hardy and easy to grow, and its little compact rosettes of leaves make it, even before it blooms, an attractive object on the rockery.

Acæna microphylla or *novæ-zealandiæ* has run over a considerable space, forming a dense carpet which does not interfere with the growth of other plants which rise up amongst it, while later on its curious little spikelets of rosy crimson flowers make it very attractive.

Anemone apennina and its closely similar ally, *A. blanda*, have been very lovely, the silver-grey variety of the latter being very pretty; while *Anemone stellata fulgens* with its brilliant scarlet flowers give a colour on the rockery very unusual in alpine flowers. Very various opinions have been hazarded on this flower, some deprecating the idea of having it in masses; others, as Mr. Ingram of Belvoir, employing it in beds for spring flowering. I cannot indulge in the latter use of it, and am therefore, *nolens volens*, an advocate for its use in detached clumps.

Aquilegia cærulea has nearly disappeared, and I imagine must be treated as a biennial; but it is very difficult to keep the seed pure, as there are no flowers apparently so easily influenced in hybridisation as the *Aquilegia*. Some years ago I thought I had a fine lot of seedlings, but they all proved to have been impregnated by the common garden flower, and produced a number of plants of large bluish flowers with a vigorous growth, very ornamental, but not having the chaste beauty of *cærulea*. *A. glandulosa* I have never been able to grow, while *Aquilegia chrysantha* is certainly one of the showiest and prettiest of the genus. I cannot understand people saying that this will not bear removal,

or that the plants dwindle away. I have now some large clumps of it of many years' standing, and they are especial favourites both in the garden and in the flower vase.

I had a great disappointment in *Anemone Pulsatilla*, of which I had a fine clump. I disturbed it in order to give a piece to a friend, but it has resented the interference, and I have not had any bloom this spring from it. As it is a very hardy plant I do not quite understand it behaving in this manner.

Cypripedium spectabile has done uncommonly well in a moist and boggy situation, several flowers being produced on the one stem, and its chaste beauty makes it a most desirable plant. *Cypripedium Calceolus* is also doing well, but I have failed in growing *C. macranthum*.

I have more than once advocated the claims of *Gypsophila paniculata*, so much used on the continent in the making-up of bouquets. My plant of it is now a large one, and gave me last season for many months an abundance of flowers which are much appreciated for cutting, while in the garden its height and almost cloudy character make it what æsthetic idiots call very precious. I would certainly advise all who desire to conciliate the powers that be to grow it for the purpose of adding to the bouquet which they are expected to finish for madame's use in the arrangement of flowers for the house.

Gentiana verna has again baffled me. The only way in which I have been enabled to enjoy it is by growing it in a pan in the greenhouse, where it has done well. I imagine it is one of those plants which dislike the changeable character of our winters. In its native habitat it is covered all the winter with a thick coating of snow, keeping it snug and warm; and then when it melts it has not the variations of frost, wet, and sunshine which so characterise our winters.

Dianthus neglectus was very beautiful here. Nothing can be more lovely than a good clump of this alpine plant—hardly a leaf to be seen, the whole covered with its large pink blossoms not rising more than 2 inches above the foliage.

Amongst the *Campanulas* on the rockery none were more beautiful than the very dwarf *C. Allioni* with its large upright flowers of pale blue; while the lovely little *Campanula pulla*, with its drooping flowers of deep purple, is almost the gem of the genus. The *Epimedium* which I received some years ago from Mr. Ingram has grown bravely, and its almost Orchid-like flowers are very useful for cutting. The *Edelweiss* (*Gnaphalium Leontopodium*) which I raised from seed has done well wherever it has been placed. It is pretty enough, but had it been a lowland plant and not associated with Swiss mountains I question very much whether it would ever have been thought so much of as it is. At any rate, persons going to Switzerland should be careful not to encourage the dangerous practice of getting it from some out-of-the-way ledge of rock when they can get it at home so easily. Of the *Primulas* I have admired most *P. rosca* with its bright rose-coloured blossoms, and *Primula viscosa nivalis* with its pure white blossoms. *Omphalodes Lucilæ* has somewhat disappointed me. It was so wonderfully praised, and the difficulty of growing it was so dilated upon, that when one did grow it and found it to be very easy of culture I expected great things. The colour is very lovely, but, like its relative *Omphalodes verna*, it does not bear more than three or four pips in the truss.

Ranonda pyrenaica, which my good friend Mr. Hammond of St. Albans gave me from his grand rock garden, has flourished wonderfully. It now forms quite a clump, and its large fleshy leaves cover the ground; these same leaves, however, forming a fine hiding place for slugs and snails, those terrible pests of a rockery, nipping off as they do in a night the long-expected reward of weeks of care. I moved some of the stones at the back of mine, and was appalled at the immense number of large fat snails which had taken up their winter quarters: there were quite enough of them to have devoured every plant on the rockery. Evidently *Ranonda* does not like sunlight, and I endeavour to shade it as well as I can with large pieces of rock.

I must, for the present at any rate, conclude with that much-talked-of and beautiful creeper, *Tropæolum speciosum*, which has so attracted tourists, whether gardeners or not, in Scotland, where it seems to thrive in every situation. I had tried it in various places, but without success; but last spring I planted it at the back of my little greenhouse in a northern aspect. Here it grew vigorously; and although I was not told that it was useless to expect flowers from it the first year, yet I was delighted to find it covered with its brilliant scarlet flowers. Curiously enough, too, as noticed by the Rev. H. Harpur Crewe, it has not died down this mild winter, and is now shooting out all up the stems. I am anxious to see how this will influence its flowering this year.

I have not indicated nearly all the beautiful flowers which my small rockery and borders have given me, but only those to which

some exceptional interest may belong. I am sure there is more enjoyment to be had from this style of gardening than from all the bedding-out and carpeting; and as I look on my borders now and see them more than half filled up with greenery, and mark the crowns of Lilies pushing up amongst them, and then recollect that if I adhered to the bedding-out style these same borders would have been as bare as a ploughed field, I wonder why people of small means with small gardens do not go more into a style which secures so much pleasure for so long a time.—D., Deal.

WINTER-FLOWERING BEGONIAS.

I WAS recently somewhat astonished to find several old plants of various winter-flowering Begonias, such as *B. semperflorens*, *B. Ingrami*, and others. They appeared to be several years of age, and displayed a few poor racemes of flowers amongst unhealthy foliage on bare stems 3 or 4 feet high. Fine plants are so easily produced from spring-struck cuttings to flower the following winter, that all should be grown in this way. Insert cuttings at once, growing them on in a stove, and in June plant them out either in cold frames or out of doors. Lift them in autumn, and grow the plants in 6 or 7-inch pots throughout the winter months.—R. P. B.

SILKWORMS AND SILKWORM REARING.—8.

(Continued from page 158.)

THE subject of the diseases to which silkworms are liable, and by which they are affected in various degrees, might be deemed an unpleasant one in some aspects, yet it is of great importance to those who rear silkworms, and also of considerable interest to the naturalist; nor is it, indeed, without its practical bearing upon trade and commerce, for such diseases affect the supply of silk and change its money value. It might be said truly of the silkworm, as of all other living creatures taken under man's care, that although the species is thus guarded from some natural diseases and dangers, it is exposed inevitably to other perils arising from a mode of life that is more or less artificial. Those who study the history of our native caterpillars are well aware that when young multitudes die from inability to reach suitable food, from unfavourable weather, and from the attacks of birds or small parasitic foes. In confinement silkworms escape these evils, but they encounter maladies of an epidemic kind; they are also liable to suffer in various ways through the mismanagement of their guardians. Few of those who rear to maturity from the egg state some of our British butterflies and moths would think of attempting to keep on breeding a species "in and in," as the saying is; and in the case of horticulture we are all aware of the advantages arising from judicious crossing. Much of the loss and trouble, therefore, that has arisen to the proprietors of silkworm establishments or "magnaneries" during the last thirty or forty years is to be ascribed to home breeding through a long series of generations.

Some out of every brood of silkworms are certain to die while quite small, and a few at each change of skin, probably owing to their having exhausted their strength in the operation. When nearly adult, again, some worms die off because they have fed up too slowly, and others through their being overfed, in consequence of which they are unable to form cocoons. These things, however, are trifling compared with the maladies that assume an epidemic character. One of these that has been long recognised as a trouble to be expected almost yearly has been called the "Muscardine." It is not confined to the silkworm countries nor to that insect, but it proves also an annoyance to the entomologist who watches the changes of British caterpillars, possibly doing most harm to the autumn broods, at which period of the year many specimens of the common house fly may be noticed lying dead on windows and walls from the effects of one form of this malady. Caterpillars attacked by muscardine have generally almost reached the adult stage, when they suddenly become reluctant to move or eat. In the case of the silkworm the colour changes to a dull white, and after death the body is stiff; in a short time it gets darker, while a whitish efflorescence shows itself first on the rings, then spreads over the whole surface. This is, of course, a fungoid growth, the cause of the malady, not merely its final result, as used to be thought. It is not contagious, but is apt to be epidemic, and is probably encouraged by excess of moisture and deficient ventilation.

"Flacherie" is a name given by silkworm breeders to another complaint, which seems to arise from a chemical decomposition taking place in the fluids of the worm, destroying occasionally a large number in the course of a few hours. Silkworms suffering from "flacherie" fix themselves in one position by their claspers

from the commencement of the complaint. They speedily become flaccid, turn black, and the skin is filled with a sour fluid, contact with which causes the malady in healthy worms. This "flacherie" has been justly attributed "to undue moisture in the atmosphere, to food too succulent or given when very damp, or to defective aëration of the breeding cages. Mr. Farm has suggested that one precaution against this might be found in exposing, at certain times, jars of quicklime where the silkworms are being reared.

But by far the worst disease that the silkworm has suffered from in confinement is the one which has been called the gettine, though now more commonly known as the pebrine. Our limited rearing of silkworms in these islands has, however, not been as yet affected by a pest which has been so destructive in Italy and France, especially in the latter country. The districts of the Cevennes, indeed, had their leading industry well-nigh ruined by the spread of this disease, which spared no "magnaneries" or silkworm establishments, but appeared to be most fatal in the larger ones. A notable feature of it was the worms of every age show those spots that are characteristic of the pebrine. Nor did the assiduous removal of all the infected tend to check the malady. It had not been much observed until 1853, from which date until about ten years since the annual loss of silk was enormous, but France is happily able now to prosecute the rearing of silkworms under favourable circumstances. We are much indebted to M. Pasteur for those researches into the history of disease germs, which have, in this special instance, done good service, and for which, and others, the Copley medal was awarded to him by the Royal Society. Pebrine, he has shown, is, like muscardine, due to a vegetable growth. It is contagious under some circumstances, and also hereditary. A curious fact is, that the disease is transmitted only through the female moths, the male insects do not convey the germs. By degrees the worn-out races of Europe have been replaced by a fresh progeny, hatched from the eggs of moths bred in China, Egypt, Australia, and other lands. This is important, but not all that is necessary; for the health of silkworms, more especially in any place where large numbers are kept, must be attended to, as in the avoidance of other maladies. There is little evidence to support the theory that the leaves of the cultivated Mulberry have more tendency to cause pebrine than those taken from the species growing wild.

We pass from this to notice briefly the subject of Mulberry cultivation, a preliminary to any extensive attempts in the direction of silkworm rearing; for, as we have remarked, Lettuce is only a suitable food while the worms are quite young, and even then the Mulberry is much to be preferred. *Morus alba* and *M. multicaulis* have the repute of being the best species. The leaf of the latter has a resemblance to that of the Lettuce, since it is large and watery, produced also in abundance by the tree; but though it may do very well at first, the White Mulberry, as containing much more of the silk-forming substance, is a far better food for worms which are getting large. At the Cape the Black Mulberry (*M. nigra*), has been planted and grows luxuriantly. In Europe this species is not a favourite owing to the slow progress it makes. The favourite Italian variety, *M. Moretti*, has had its advocates, and the vigorous *M. alpina*. Amongst recent introductions is the large-leaved *M. japonica*, brought from Japan.

In that country they have a method of their own of obtaining young Mulberries by means of suckers. A tree of some size is selected for the purpose and cut down at 6 or 8 inches from the ground. All shoots from the trunk being removed, the tree will then throw out suckers from the roots, perhaps to the number of fifty or more, which are removed and planted separately. It is also propagated by cuttings or by layering, and grown from seed. In England, however, an abundant supply of young trees is easily obtainable from the south of France. The Mulberry will succeed almost in any situation, though it prefers an open position with gravelly soil. Until it has attained the age of three years the leaves should not be plucked for feeding silkworms, and at all times leaves or twigs should be removed carefully, not torn off so as to cause bleeding.—J. R. S. C.

(To be continued.)

THE FRENCH VINTAGE—THE PHYLLOXERA.—The returns which were published some time since relative to the French vintage last year bring into striking relief the mischief which has been done by the phylloxera. The total acreage of vineyards had fallen last year to 5,200,000 acres, this being a decrease of 250,000 acres from 1880, and of 370,000 acres from 1874; and as the ravages of the insect extended to 2,500,000 acres of the vineyards still under cultivation, it is evident that in another twelvemonth the returns will be still more discouraging unless some unlooked-for remedy is discovered in the meantime. Three or four departments seem to have suffered more severely last year than ever before, for in the Charente the acreage planted in Vines fell from 230,000 acres in 1880 to 42,000, while the

department of the Charente Inférieure, which had 370,000 acres of vineyard in 1875, and 852,000 in 1880, had only 610,000 last year; the department of the Hérault declining during the same period from 490,000 and 265,000 acres to 215,000 acres. Even in the departments where, notwithstanding the appearance of the phylloxera, there has not been any diminution in the acreage of the vineyards, there has been a marked falling-off in the yield, and in the Lot-et-Garonne, with its 175,000 acres of vineyard, the yield has fallen from 1,238,000 hectolitres (22½ gallons each) to 667,000 in 1880, and 357,000 last year. The vintage was very abundant last year in all the departments which have hitherto escaped the ravages of the phylloxera, such as the Pyrénées-Orientales, the Aude, the Cher, the Loire-et-Cher, the Marne, and the Meurthe-et-Moselle, and this is why the total yield for the last year was 768,119,500 gallons as compared to 579,845,000 in 1880. The effect of all this upon the imports and exports has been very marked. From 1871 to 1875 the exports of wine from France averaged 80,000,000 gallons, but last year they were only 47,450,000. The making of wine from raisins has also become a recognised trade, and the latest statistical publication of the French Ministry of Finance gives the following receipt:—Crush about 70 lbs. of Smyrna or Cyprus raisins in 450 gallons of hot water; and after a fermentation of twelve days to three weeks, the result will be a very palatable white wine possessing from 7° to 9° of alcoholic strength." It is estimated that about 50,000,000 gallons of "wine" were made in this way last year, and that as much more was obtained by a second and third press of the Grapes after they had been crushed once, and by an addition of water and sugar.

WALTON LEA.

THIS estate, the residence of John Crosfield, Esq., is situated on a rising portion of ground about two miles from Warrington. The gardens and grounds are moderately extensive, and the mansion, which is built of stone, is a substantial commodious structure. It is situated in the centre of the grounds, from which extensive views can be obtained of the surrounding country. It is approached from the main road by a neat and well-kept drive, which curves sharply to the left, and the grounds on each side rise considerably until it reaches the mansion. Judging from the nature of the grounds closely surrounding the drive a large amount of excavation must have been required in its formation. On each side of the drive are large belts or clumps of Hollies; in fact throughout the grounds, which have been well laid out, the shrubberies and the groups of evergreens principally consist of Hollies. I was somewhat surprised to find such a fine collection of these useful shrubs in the vicinity of Warrington, the atmosphere being far from favourable to the growth of evergreens; but at Walton Lea the Hollies are quite at home, and scores of well-formed, symmetrical, healthy specimens can be seen. When the planting was first done great care must have been exercised only to plant those shrubs most likely to succeed in the neighbourhood; and in such an exposed situation, subject to such high and cutting winds, only a few of the choicer Coniferae—those most likely to succeed—are grown, and for these sheltered positions have been selected. Many neglect to consider the plants most suitable for the situation, and introduce many choice young specimens which only live a few years. The Hollies in these grounds have either been planted sufficiently thin or timely thinned out to allow them room to develop. Unfortunately in too many gardens shrubs are thickly planted for appearance at first, and then allowed to grow into a dense mass, which looks well in the front for a few years but they soon become full of dead and decaying branches by the want of light and air, and not a creditable specimen remains. This is a ruinous system, especially in exposed situations and in the neighbourhood of large towns, where the work of destruction appears to be more complete than in a pure air and more favourable locality. One other feature in connection with these Hollies is that they have all been clipped or cut in closely. Many, I know, living in neighbourhoods favourable to the growth of evergreens would strenuously object to this, and condemn clipping or anything approaching it, as Hollies when doing well frequently grow due proportioned. I do not admire formality in this respect in a garden, and prefer to see trees and shrubs develop naturally, except where they can be improved by removing badly formed shoots or any likely to outgrow its neighbours. But the Hollies referred to do not look formal, although they are all of pyramidal habit. This hard cutting-in is necessary in such places, as the plants grow much more compact and resist the force of the strong winds better. Pruning is a great advantage in the smoky suburbs of large towns and windy places, and should be practised more generally. The varieties of the Gold, Silver, and green kinds all succeed remarkably well near towns, and if the palm is to be given to any kind it is that dark green-foliaged variety *Ilex Hodginsii*.

In leaving the drive and crossing a portion of a fine lawn in

capital condition, the ground gradually descends until the Rose garden is observed in a beautiful position well screened by trees and shrubs, and yet not too much shaded. The beds are of good size and simple in design, being cut out in the lawn with a good portion of grass between them. The plants are dwarfs, and appear to be doing well. The wood was remarkably strong, and gave promise of an abundance of fine blooms, especially the plants forming a bed of *Capitaine Christy*. The varieties are not numerous, as each bed consists of only one kind, and free-flowering varieties have been selected. The shoots are all pegged over the bed, and when in flower and viewed from above they cannot fail to prove very effective. This pegging-down system is carried out in many gardens, but generally the shoots are brought close to the soil, and in case of heavy rains the blooms are much splashed with the soil. This objection I have heard urged against this system of growing Roses; but with the Rose beds referred to no such objection can be raised, as strong pegs have purposely been made of thin iron, and the shoots are brought to about 9 inches or 1 foot from the soil.

Passing out on the opposite side of the Rose garden we observed a small rockery planted principally with hardy Ferns. A portion of this had only recently been erected. The flower garden, which is also cut out in the grass, is near the mansion on the south side, and is kept gay with flowers both in spring and summer. The kitchen garden is well proportioned to the extent of the place; it is well cropped and in good keeping. There is a good collection of hardy fruit trees in very satisfactory condition. The Apples, Pears, and Plums are principally pyramids and bushes, which have attained a good fruit-bearing size, and the walls were also well furnished. A wall of Apricots looked promising, and I understand they have not failed to produce an average crop of fruit for some years.

The conservatory is a light structure attached to the mansion, and was very gay with flowers throughout the year. The plants are all arranged in the body of the house in groups and looked well, each plant being allowed plenty of room. A narrow stage is erected round the sides of the house over the pipes, but is very low, so that the plants can be looked down upon instead of having first to view the pots and stage as is too often the case. The Azalea house is span-roofed and occupied with pyramidal specimens 5 or 6 feet high. A fine *Daphne indica rubra* was especially worthy of note, being in vigorous health and the largest specimen I have seen. On one side of the house a low arched trellis had been arranged, and the border planted with Tea Roses growing vigorously and flowering profusely. Houses in this range were also devoted to softwooded plants for cutting and decoration, others to stove plants and a few Orchids. In the stove foliage plants and Ferns principally predominate. The Vines were in excellent condition and bearing fine crops, as were also the Peach trees in the two houses, such varieties as *Royal George*, *Barrington*, and *Grosse Mignonne* Peaches, and *Violette Hâtive* and *Elrue* Nectarines being relied upon. Another house was filled with magnificent Camellias in admirable condition, pyramidal in shape, 7 or 8 feet high, and well furnished to the ground. They are planted out in two rows extending the length of the house, one row on each side of the walk. *Imbricata*, *Jenny Lind*, *Cup of Beauty*, *Elegans*, *Fimbriata*, *Lady Hume's Blush*, *Hendersonii*, *Candidissima*, *Countess of Ellesmere*, and *Contessa Lavinia Maggi* were all fine plants, the last-named producing blooms fully 7 inches in diameter. The roof is partially covered with Clematis, such as *Lucie Lemoine*, *Lady Londesborough*, *Miss Bateman*, and *Standishii*. The gardens on the whole inside and out were in good keeping, order and neatness being prominent everywhere, and very creditable to the gardener, Mr. Kipps.—VISITOR.

FRUIT AND WOOD BUDS.

SOME little time ago I wrote a query under the above heading, and since then some facts have come under my notice which perhaps you might find room for in a corner of the Journal. As at the time you were kind enough to say the subject was one of much interest, and had not received as much attention as it deserved, perhaps recording my notes may draw a little more to it and interest others.

My query was, When are wood buds converted into fruit buds? During summer and autumn alone, or during winter and early spring? I think it is generally believed that it is only during the first two seasons, and that this is not the case the facts I am about to state seem to prove. These are the facts whatever the theory be. In 1880 I grafted a number of Plum scions on the Mussel stock, then being about half an inch in diameter. In the spring of 1881 I placed some of these in 10-inch pots and grew them in my orchard house all the year. They are now fine

little trees, some having more fruit set on them than they could bring to perfection. Others grafted in 1880 I left to grow in the nursery till the end of October, 1881, when they were placed in 11-inch pots, and housed in the orchard house through the winter and up to the present time.

One of these was the Washington Plum, a very vigorous tree fully 6 or 7 feet high, having been only once headed back. At the time of potting the shoots were so gross and vigorous that I had not the least expectation there would be a flower bud this year; there certainly was no appearance of fruiting wood. On potting it I cut it down to about 4 feet, and pruned in the side shoots so as to make it into a pyramid. In February nearly all the buds on the side shoots proved to be fruit buds, and the tree is now in wonderful bloom. Another tree of Early Apricot Plum treated in the same way has come out in blossom, which, if it had been left in the nursery, no one would have given much for its chance of having fruit or flowers this year.

There is only one other of the year 1880 growth I will refer to, and though I thought I might possibly have overlooked the fruiting wood in the others at potting time there could be no mistake about this. It is a very fine tree of Prince Englebert Plum. The first season it grew 6 or 7 feet, was cut down to 3 feet in the spring of 1881, potted like the others in end of October, but not then cut down like them, as I wanted it as a tall pyramid for a back border. This showed no fruit buds on the side shoots as Washington and Early Apricot did in February, so as it was so vigorous I gave up expecting any to appear; but last week I discovered the top of the main shoot and for about 9 inches down is thickly studded with clusters of flowers. This is from all my gardening experience the most extraordinary and unlikely place for a young two-year-old Plum in a most vigorous state of growth to produce flowers, the unshortened main shoot of last year on which they are being fully 4 feet long; the tree 7 feet high.

Of last year's grafts two Cherries are now in full flower with half a dozen flower clusters each; these were potted for the orchard house in October, 1881, and under most favourable circumstances outside would not have shown a blossom till they were at least two years old, and probably not till they were three. I have other trees that seem to have formed their fruit buds in early spring, but none so remarkable as the Prince Englebert Plum. Now my idea is, that all this unusual and unexpected fruitfulness is the winter and spring work of the trees in the mild atmosphere of the orchard house.

Last summer and autumn were in this region the most miserable and melancholy seasons we have experienced for a very long time. Their effects on the trees unsheltered by glass or walls are very evident. The violent and long-continued east winds in autumn in this neighbourhood tore off the leaves long before they had completed their tasks. They were torn from their leafstalks, which remained attached to the trees all winter and till late spring, and as the consequence there are very few flower clusters this season. My little year-old—or then they were but half-year-old Cherries—had their leaves wrenched off in this way, and yet the mild climate of the orchard house coupled with the extraordinary mild winter and spring we have had seems to have enabled them to more than make up for their loss, and that during a time when they had no leaves to help them.

Would "SINGLE-HANDED," Mr. Iggulden, or other correspondents notice the matter? It is one in which I am much interested, and would like to hear what the observations of others may have been.—IRISH RECTOR.

P.S.—If my letter is not already unreasonably long, might I ask if any of your readers know anything of the Columbia Plum? Except in the "Fruit Manual" I can hear of it nowhere. I have repeatedly applied to nurserymen and cannot get it. There are two Apples which used to be sold by Messrs. Lee of Hammer-smith—the Keeping Russet and Barton's Incomparable, but they no longer keep the stocks, so that there seems a likelihood these two excellent Apples may be soon lost, as I have been trying in all directions to get a scion and have failed. Perhaps some reader might either have, or know of someone who has, a sample, as I would like to add them to my kinds for experimenting on in the cold north. One more question. Does anyone know what the correct name of the baking Apple, here and throughout the north of Ireland called the Ballyfatten? It is above medium size, with prominent ribs and dark red cheek, an excellent keeping Apple.—I. R.

EUONYMUSES.

THESE evergreen shrubs are not employed for decoration at the present time nearly so much as they deserve. Some of the variegated forms are beautiful, and are almost as imposing in cool structures as Crotons are in the stove. It is surprising some of

these are not seen more frequently associated with Palms, Tree Ferns, Camellias, and other fine-foliage plants in large conservatories and winter gardens. The *Euonymus* naturally grows into a shapely bush or pyramid, and standards with fine heads can be developed in a few years. We not unfrequently find in large glass structures the permanent occupants more or less of a green type of foliage varying only in form and shade. In such houses a few plants of *Euonymus* would give a more cheerful and pleasing appearance to the arrangement.

Some of the varieties are hardy, at least near the seacoast, particularly in Wales and in sheltered positions in the southern counties, but in northerly districts they fail if the winters are severe. The plants possess one great advantage which alone is sufficient to recommend them—they endure smoke with impunity, and thrive well for the greater portion of the year in town gardens. Some of the green-leaved varieties I have seen flourish vigorously in smoky localities and survive all ordinary winters, but the winter of 1880–81 injured the plants severely. For windows in towns I know of no class of plants to equal them. In rooms they grow well and retain their beautiful variegation. I have long wondered why they have not been grown largely for the embellishment of ballrooms, corridors, and similar places, instead of employing so many delicate tender *Crotons* that require much heat, and are more susceptible of injury from gas and draughts than the *Euonymus*.

These plants can also be effectively employed in various ways in the pleasure grounds. In the subtropical garden they could be used to great advantage, and would not require the care to raise and keep them through the winter as is the case with many variegated plants now in use. The golden forms associated with any dark-leaved plants, such as *Iresine Lindenii*, *I. Herbstii*, or *Amaranthus melancholicus ruber*, would be charming. In suitable nooks and corners I do not know what could be more attractive than small beds filled with these plants and edged with *Lobelias*, *Alternantheras*, or any plants that would contrast well and harmonise with the surroundings. Again, standards with small heads would look well rising from amongst dwarf flowering or foliage plants. While pyramidal specimens could be placed in the centre of large beds, and thus relieve the flatness too often seen, individual specimens would look well plunged or planted out for the summer on lawns or in the shrubby borders. Standards in beds of dwarf evergreens appear beautiful, and the same remark applies when two or three rows are used for the front of long borders of shrubs or round small clumps. Two or three seasons ago I saw a very fine lot of *Euonymus* at the Upton Nurseries, Chester, employed on a long border with a number of small *Conifers*, and I do not remember seeing anything before or since more effective. When employed for these purposes and plunged out in their pots the latter should be entirely covered and the beds mulched, or the labour of supplying water would be considerable. It is preferable to bed them out, when they would require no more water than *Pelargoniums*, and could be lifted safely in autumn, repotted, and stored for protection in cold frames.

The following are useful variegated forms—*E. argenteo-variegatus*, *E. aureo-variegatus*, *E. Duc d'Anjou*, *E. elegantissimus variegatus*, *E. japonicus latifolius albo-variegatus*, *E. marginatus aureus*, and *E. ovatus aureo-variegatus*.

Notes on propagation may with advantage be postponed until the time approaches for inserting the cuttings.—W. BARDNEY.



HARDY FRUIT GARDEN.

THE weather, for some time having been cold owing to the prevalence of east winds, has retarded the blossom of fruit trees considerably, but does not appear to have had an injurious effect, for though the air was cold it was dry, and now the weather has become moist the fruits that have set are swelling rapidly, especially *Apricots*, and where the protection is of a fixed character a portion should now be removed. Where the protection consists of canvas screens, &c., these should be removed early in the morning and let down somewhat late at night in accordance with the state of the weather. *Peaches* and *Nectarines*, though less forward than the *Apricots*, will need similar attention. *Cherries*, *Pears*, and *Plums* on walls are now generally in bloom, and should have a slight protection of some kind, either applied or held in readiness.

Aphides will probably soon attack the growths of the *Peach*, *Plum*, and *Cherry*, to check which timely recourse must be had to diluted tobacco water, or syringing on a calm and mild evening with some approved insecticide. Upon the first appearance of mildew upon the *Peach* or *Nectarine* trees dust well with flowers of sulphur. The leaf-rolling caterpillar may be expected to make its unwelcome appearance on the foliage of the *Apricot* trees, and should be carefully picked off or crushed by the finger and thumb. Watch also for the *Gooseberry* caterpillar, and whenever discovered dust the bushes with hellebore powder. Hoe freely among plantations of *Gooseberries*, *Currants*, *Raspberries*, and *Strawberries*, to loosen the surface of the soil, as well as to keep down weeds. Mulch plantations of *Strawberries* with half-decayed stable-yard manure.

MUSHROOM BEDS.

Materials should now be collected for making Mushroom beds in open and airy situations to insure a supply of Mushrooms after those grown indoors become infested by maggots, as they invariably do during the early part of summer. Suitable positions for making beds are open sheds with a north aspect, but they may be made outdoors, choosing a dry site, and having means to protect them from heavy rains. At this season it is necessary to have less straw in the admixture than is desirable during the winter months, as it would cause the materials to become light and dry too quickly. Crude horse droppings, however, are not necessarily essential, as the dung and short litter from the dung yard—the long litter being shaken out—form admirable material; and if too dry a slight sprinkling with liquid from the tank and occasional turning and throwing into a heap will soon bring the material into a proper condition for making into beds. Older beds in bearing will need sprinkling daily with tepid water, assisting those showing signs of exhaustion by a good watering with tepid liquid manure.

FRUIT HOUSES.

Vines.—Where *Grapes* are ripe and the foliage is good the lateral growth should be pinched quite close, and the temperature kept as equable as possible, 60° being sufficient by artificial means, but the decline to this must be gradual. If there be any red spider it will be advisable to allow a little more freedom to the laterals, and the hot water pipes should be heated to over 160°, and brushed with flowers of sulphur mixed with skim milk. The border must not be allowed to become dry, but have water or liquid manure as necessary to keep the soil moist and preserve the foliage in good condition, moderate atmospheric moisture not being injurious to the ripe fruit now. Inside borders where *Vines* are swelling their fruit or approaching ripening should be examined, and if the soil is at all dry give a thorough soaking with tepid liquid manure, and top-dress with short manure to prevent evaporation. Although a drier atmosphere is essential when the *Grapes* are ripening, when they are swelling it is important that a genial condition of the atmosphere be maintained for some time after they commence colouring, giving air freely in suitable weather. *Vines* generally are making rapid progress, and for some time now it will be difficult to keep pace with thinning, pinching, tying, and regulating the shoots, which are of such importance. Thinning must be attended to promptly both as regards the berries and bunches. Remove the points of all lateral growths regularly. Late *Vines* are now starting freely, and should be encouraged to make active growth, syringing freely twice a day, dispensing with fire heat as much as possible, and closing the house early on fine afternoons. Afford *Muscats* in flower a day temperature of 80° to 85°, with a free circulation of dry air, keeping the points of the bunches near to the light, and liberate the pollen by gently shaking the *Vines* when the maximum temperature has been reached.

Cucumbers.—In order to secure healthy and fruitful plants do not omit trimming them regularly about twice a week. The supply of moisture both at the roots and in the atmosphere must be liberal, or red spider and other insect pests will quickly appear. Brushing the pipes thinly with flowers of sulphur is the best remedy for red spider. The foliage must not be allowed to flag severely, but shade as little as possible at present, employing only a thin material for an hour or two at mid-day. In pits and frames let the supply of moisture be increased, damping the foliage gently through a fine rose early

on warm sunny afternoons, closing the lights for an hour or two at the same time, but afterwards open them a little at the top for half an hour. Still maintain a good bottom heat by means of fresh linings, and afterwards be careful to allow the escape of rank heat and steam. Earth up the roots lightly from time to time. Sow seed at once to raise plants for ridges outside.

Melons.—The earliest plants having their fruits swelling will need a genial atmosphere and copious supplies of water or liquid manure at the roots, damping the house in the morning, and lightly syringe the plants in the afternoon of fine days. Keep the laterals closely pinched and remove superfluous growths. Maintain a night temperature of 70°, and 80° to 85° or 90° with sun heat. Later plants are now showing fruit, and unless these are abundant remove the first, as it is important that the female flowers be nearly of one stage of growth. There will usually be no difficulty in securing half a dozen pistillate flowers on each plant if the plants have made plenty of growth. Fertilise the flowers daily, maintaining a drier condition of the atmosphere for a few days, and only give as much moisture at the roots as will prevent flagging. In pits and frames a good bottom heat must still be maintained, and as the plants flower observe the conditions before advised during the setting period. After the fruits have set place them on a piece of slate.

PLANT HOUSE.

Orchids.—East Indian species are now growing, and will require abundant moisture with a good heat. A temperature of 70° at night and 80° by day should be maintained, a little ventilation being necessary on fine days from about 9 A.M. until 4 P.M. Shading will be needed when the sun is very powerful. Syringe the plants early in the morning and again in the afternoon on fine days, guarding against damping the flowers. Cattleyas that are growing will require careful attention, and should be separated from those that have completed their growth. Cattleya labiata and C. guttata, Lælia elegans, and many others in a growing state, will require to be kept moist; but Cattleya Mossiæ, Lælia purpurata, and others that have their growths completed, should be placed at the coolest end of the house and have less moisture. Barkerias should be kept cool and moist; in fine weather they require syringing two or three times a day. Cœlogyne cristata must be frequently syringed now it is starting in growth, and as the plants make fresh roots they require a good supply of water. Cypripediums must have plentiful supplies of water. Where Lyeastes require repotting it should be done immediately the flowering is past, using good fibrous peat with good drainage, as they require plenty of water during growth. Fumigate frequently to keep down thrips.



BEE-KEEPING—THE BAR-FRAME HIVE.

So many persons have commenced bee-keeping in the new and very commendable system of the bar-frame hive, I will attempt to give some hints as to its successful management as regards wintering and obtaining surplus honey in super or otherwise.

Wintering bees properly is a more difficult matter than most people are aware of, heat being the point aimed at by many, which is not at all the essential one. Dryness is the essential point in wintering bees, and the one on which the straw skepist builds his arguments. Straw is a dry porous material. In summer it is a good non-conductor, and in winter it is a good absorber of damp in the inside of the hive, where there is much evaporation, and if provisions are not made for its escape it will condense, causing saturation and a humid atmosphere in the hive—the very worst thing for bee life. This and low price are the only advantages I can see in the straw skep, while the bar frame has very many, and with a little intelligence can be made quite as dry as any straw skep. Our bar frames have wooden covers to go all over them from floorboard to 7 or 8 inches on the square above the top to allow of supering. I have the cover cut in two. The bottom part comes up to the top of the hive, and the top part having plinths all round to secure the junction fitting on it exactly, and allowing of it being easily removed for manipulating purposes. I have holes in both ends of the top part covered with perforated zinc to ensure

ventilation and keep all sweet inside. I remove the crown board altogether, and substitute for it some quilting of such material as room felting, carpet, old flannel, or bagging. This warm but porous top cover keeps all very dry on the top of the frames. The latter are generally reduced to about five or six for wintering. This is my simple plan, and I have never yet lost any bees in winter. In spring, instead of putting in a frame at the side to increase the number of frames, it is much better to put one in between two containing brood, so that at once the bees will elongate the cells of the comb foundation, and the queen will lay in them perhaps within twenty-four hours, whereas if it were put outside the other frames it would remain unnoticed by the queen, as she is not disposed to deposit eggs on an outside comb except in June or July, and even then we invariably find it occupied with honey. In September, when the hive is being contracted and the frames being reduced to six, those containing the whitest comb can be kept out and used in the house, and sufficient sugar syrup given to the bees to fill at least five of the frames. This syrup, if possible, ought to be given in September, so as to allow the bees to have it stored and sealed over before frost. Open food is injurious to bees, as it causes much damp inside the hive. For those who would not care to take the trouble with sectional supers, the taking-out of a comb or two as the bees fill it would answer very well. They would have a fair return for a minimum of trouble, but not to be compared in results to the small section system that I will next explain.—COMBER, Co. Down.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE second quarterly meeting of the present year, held for the purpose of conferring with the representatives of county bee-keepers' associations, took place in the Board-room of the Royal Society for the Prevention of Cruelty to Animals at 105, Jermyn Street, on Wednesday, April 12th. Mr. Thos. W. Cowan presided. There were present—Hon. and Rev. H. Bligh, Rev. E. Bartrum, Capt. C. D. Campbell, Messrs. H. Jonas, J. M. Hooker, D. Stewart, W. O. B. Glennie (Treasurer), Rev. H. R. Peel (Hon. Sec.), and the following representatives—viz., Messrs. Cartland (Berks and Bucks), E. Durrant (Essex), J. Garratt (Kent), H. Yates and Mr. Millbourne (Lincolnshire), Revs. J. H. Dixon and W. E. Burkitt (Wiltshire). Further arrangements were made in connection with the exhibition of bees, hives, honey, &c., to be held in connection with the Bath and West of England Agricultural Show at Cardiff. Resolved that the following gentlemen be requested to act as Judges—viz., at Cardiff, Rev. K. M. Filleul, Mr. George Bevan Fox, and Mr. C. Tite. At Reading (Royal Agricultural Society), Rev. S. R. Wilkinson, the Rev. E. Bartrum, Mr. W. H. Harris, Mr. J. M. Hooker, and Mr. Thos. W. Cowan.

It was resolved that communications be made with the British Dairy Farmers' Association, with the view of an exhibition of bees, hives, honey, &c., being held in connection with the annual Dairy Show to be held at the Agricultural Hall, Islington, on December 3rd and following days.

The Honorary Secretary reported the formation of several new county bee-keepers' associations since the commencement of the present year. The work of these associations was much retarded for the want of good and efficient resident experts. In many counties bee-keeping was but very little understood, and experts had to be sent from long distances to traverse these counties to give the necessary instruction, and much expense was incurred thereby. The Rev. H. R. Peel suggested that some steps should be taken to teach and qualify young men so to act. He was of opinion that such persons should adopt bee-keeping as a profession, having a knowledge of the manufacture of hives and other bee-keeping appliances. There was a large field of labour open for enterprising men in this particular direction, more especially in the distant counties of England, Wales, &c. The question was discussed at some length. Ultimately it was resolved "That the Hon. Secretary be requested to communicate with the experts of the British Bee-keepers' Association, asking them upon what terms they would take young men to accompany them on their tours of inspection in the spring and autumn months, and with the bee tent at agricultural and horticultural shows, for the purpose of teaching them bee-management sufficiently to enable them to act as country experts."

SUPERING.

How speedily seasons wheel round. Gooseberry bushes and Plum trees are in blossom at Bowdon. A look to-day into some of my nives made me think of swarming and supering, and reminded me that the hot and honey weather of last year came suddenly and found many apiarists like myself not fully prepared to take and use the advantages offered by it. Resolutions were then made to act differently this year and be prepared beforehand for the supering and swarming season. At this season in large apiaries both bees and bee-masters are all in a buzz of pleasure and activity if ample preparations have been previously made for all possible wants and contingencies. Even at the active season bee-keeping

is easy and pleasant if the bee-master has swarm hives and supers enough prepared and at hand ready for use. Bad luck in bee-keeping is often the outcome of ignorance or inattention. Let us try to avoid the mistakes of former years, and be well prepared this season for all possible wants and emergencies. We may be quite certain that bees will make fewer mistakes than their masters.

Now for a few words on supering. Last year at this time I had arranged to prepare for the great show at Manchester, and therefore I ordered large and handsome bee-glasses for supering. Though I have made no engagements for this year, other bee-keepers may be anxious to have some good exhibits for town or country shows. As large bee-glasses well filled with honeycomb

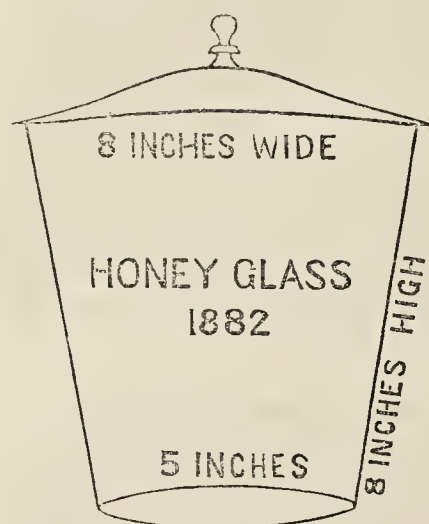


Fig. 68.

please the general public well, I will here describe those used last year and those I intend to order this. The large glasses were captivating in appearance and greatly admired, but were not easily filled and finished. It took strong hives about three weeks of honey weather to fill one each; and when finished they weighed 20 lbs. each including glass. This year my glasses will be smaller, differently shaped, and more easily filled. They will give greater facilities for the use of artificial comb foundations, which are of great assistance to both bees and bee-masters in supering. In the large glasses artificial foundations about 5 inches wide were used from top to bottom down their centres, and the swell or wider parts of the glasses had to be left wholly to the bees, giving them considerable work. The glasses we are about to order for this season will be 8 inches wide at the top, 5 inches at the bottom, and 8 inches deep (see fig. 68), in shape somewhat like a garden flower pot, with lids to cover them. They will admit foundation combs from top to bottom and from side to side, be more easily filled by the bees and more saleable in the market. I expect when full that they will weigh 9 or 10 lbs. each, glass included. My glass merchant in Manchester makes bee-glasses of any size or shape with lids to fit at 1s. per lb. weight if twelve are ordered at once. If less than a dozen are ordered the blowers or workmen charge more for their work, and of course the master charges more for his glasses. Last year most of the large ornamental glass supers sold at 2s. per lb. glass included. These particulars are mentioned that the reader may know all I can tell him about bee-glasses. I do not sell empty hives, or supers, or bee furniture of any kind.

In using glass supers I use wood lids at first, and till the combs are well fastened to and supported by the sides of the supers. Bees can work more easily on wood than on glass, and combs hold more firmly to wood than glass; but as our supers are narrower below than above, the combs are well supported and cannot fall down. When the supers are nearly filled the wooden lids are cut off and the glass ones are replaced.

Amateurs who eat their own comb and care nothing about appearance should use wood supers, which are better and cheaper than glass, and far more easily managed. We use in supering shallow boxes emptied and sold by grocers. In using them we cut a hole out of the bottoms 3 inches in diameter, fill or half fill them with artificial foundations or guide combs, put lids on them, and place them on hives. Supering is made easy and profitable by the introduction and use of artificial foundations; and there can be no limit to the variety of beautiful designs in honeycomb that can and will be built on them in our apiaries and shown in our exhibitions.—A. PETTIGREW, *Bowdon*.

TRADE CATALOGUES RECEIVED.

Cranston's Nursery and Seed Company (Limited), King's Acre Hereford.—*Catalogue of New Roses and Bedding Plants*.

J. Cheal & Sons, Crawley, Sussex.—*List of Hardy Plants*.

James Cocker & Sons, Aberdeen.—*Catalogue of Florist Flowers and Bedding Plants*.

W. M. Crowe, Upton, Essex.—*Catalogue of Plants*.



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

City Gardening (A. Z.).—We doubt if there is a manual of the precise nature you appear to desire, and we do not know of anything more suitable than a small work entitled "Town Gardening," written by Mr. Shirley Hibberd several years ago, and published by Messrs. Groombridge & Sons. "Town and Window Gardening," by Catharine M. Buckton (Longmans), might also be acceptable.

Toughened Glass (Alfred Taylor).—The glass to which we referred in our issue of November 9th, 1876, was sent to us by Messrs. Diek Radcliffe and Co., 129, High Holborn, London, but we do not know the names of the manufacturers of it.

Woodlice in Mushroom House (T. W.).—If you place a boiled potato in a flower pot and cover it with moss your enemies will be sure to find it, and by having several of such baits and examining them frequently you may catch numbers of woodlice. Parsnips boiled soft, and when cold sprinkled with arsenic, form deadly baits. The insects appear to eat the parsnips freely, but only once.

Asparagus Unsatisfactory (F. O. M.).—If the soil is good, and the plants not old, much exhausted, and "worn out," the plan you propose of resting them (not cutting), for a year would strengthen the crowns; but with healthy plantations in good soil an abundance of fine heads would be produced, and might be cut yearly until the middle of June. If you had described your beds more fully we could have answered your letter more satisfactorily—to ourselves at any rate.

"Calvary Clover" (E. L. R.).—We do not know a plant bearing the above name, but probably you refer to *Medicago intertexta*, the Hedgehog Medick, so called from the spiny appearance of the clusters of fruits. This is a native of South Europe, and as well as several other species and varieties of *Medicago*, distinguished by the peculiar form of the fruits. It was at one time much grown by lovers of curiosities. *M. Echinus*, *M. hystrix*, and *M. scutellata* are all noteworthy for their peculiar fruits. The Christ's Thorn is *Paliurus aculeatus*, and according to some authors *Zizyphus Spina-Christi*, both being found in Palestine, and both related to our Buckthorn, *Rhamnus catharticus*.

Dendrobium lituiflorum var. robustius (Ignoramus).—The flowers you send represent a good variety of *D. lituiflorum*, and from the description given of the larger pseudo-hulbs and erect or semi-erect habit we conclude that it is the variety described by Professor Reichenbach in the "Gardener's Chronicle" 1877, vol. vii., page 781, under the name of *D. lituiflorum var. robustius*. It was imported by Messrs. Low from Burmah, and is distinguished from the type by its habit and greater vigour of growth.

Exhibiting Pansies (F. J.).—The boxes should be painted green, and if quite clean, as they ought to be, they will not require to be covered with paper of any colour; but each flower should be placed in a perfectly circular, stout, white paper collar a trifle larger than the flowers themselves, just showing a white margin; this is the plan by which they are considered to look the best, but the collars must not be too prominent, and their edges should be quite smooth, not fringed in a fanciful manner, as we sometimes see them. About the middle of May will be a suitable time for sowing the seeds you name, and if the plants are properly managed they will flower at the time you require them.

Vine Management (E. D.).—Without knowing the nature of the soil of the border we cannot give a categorical reply to your question. Unless the soil were rather light and not rich we think such a dressing of heavy manure was not advisable, and a covering of lighter material for protective purposes would have been preferable. We should remove some of the manure, or it will be long before the sun can raise the temperature of the soil in which the roots are working. Your treatment would have been right for heavily cropped old Vines, but young Vines could scarcely need such rich fare. Much, however, depends on the nature of the soil, and this you say nothing about.

Roses not Expanding (H. T.).—No doubt the dryness of the air of the house has an injurious effect on the Roses, and the plants, we suspect, are also deficient in vigour, or the root-action is defective. You appear to be aware that the house is too dry, then why keep it so? Syringe the Roses daily, or twice daily, in fine weather, and sprinkle the floors and walls occasionally. This will not only be beneficial to the Roses but equally so to the other plants you name, in conjunction with judicious ventilation, and especially not having the house too damp when closed at night. No softwooded or free-growing plants succeed well or remain long free from insects in a very dry atmosphere.

Bedding Arrangements (Amateur).—It is not our practice to submit methods of planting flower beds and borders, but we examine any proposed arrangements that are sent to us, and readily make such suggestions as in our opinion would, if carried out, improve the appearance of the beds. Those who have the beds to plant must take the initiative in the matter, and they will no doubt be guided in a great measure by the plants at their disposal when arranging their plans. Again, how is it possible for anyone not knowing the district, character of the soil, and whether the garden is exposed or sheltered, to form an opinion of any value as to whether *Violas* will flower continuously, or such plants as *Coleus* and *Alternanthera* flourish? Then, again, no one can aid you satisfactorily in a matter of this kind without having a plan of the beds, or at least knowing their size. You do not even state the width of the border.

Tropæolums would cover the fence if the position is not too much exposed, and the growths were secured to the ironwork. If you submit to us your plan of arrangement, and supply the information we have suggested, we will willingly render you what assistance we can.

Sulphate of Ammonia for Chrysanthemums (Q.).—Sulphate of ammonia is a powerful stimulant, and as such is very useful when plants that have grown well are failing by bearing a too heavy crop of flowers. Used cautiously it will maintain a moderately good growth that will prove satisfactory. Used incautiously it is much more likely to promote a gross sappy growth that will not produce fine blooms. It should be used after the buds are seen, when it will materially help these. A teaspoonful of the salt to a gallon of water is sufficient, and even then only plants that have taken thorough possession of the soil should be treated with it. A few days ago our attention was called to some *Pelargoniums* (*Zonals*) to which sulphate of ammonia had been given. The result was a tremendous growth, but a greater degree of flowerlessness. He had been before using water charged with muriate of potash and soluble phosphate. These, for want of nitrogen, had been lying idle, and when "the missing link" was supplied the plants grew excessively. A little thought will enable you to profit from such a fact as this.

Dandelions in Lawns (Dent de Lion).—Whatever may have been the cause of the first invasion of Dandelions to which you refer, there is no doubt the practice that has been adopted of allowing them to form flower heads and then scattering these on the lawn by the mowing machine has resulted in their increase. One drop of vitriol (sulphuric acid) applied to the centre of each plant will kill it, but it must be dropped quite into the centre, and not merely on the leaves, missing the heart. We have seen thousands of weeds, such as Dandelions, Thistles, and Plantains, destroyed in the manner indicated. A good method of using the acid is to have it in a stone blacking bottle with wire, not string, round it for carrying. Then take a piece of stick the size of an ordinary pencil, and cut notches round it for an inch or two at one end; these notches when the stick is dipped into the bottle hold sufficient acid for killing one very large, or, if applied quickly, two or three small plants. Care must be exercised in the application of this weed-destroyer, and it should not be entrusted to boys or women, as it burns every portion of a boot or garment that it touches; neither must the stick be drawn incautiously on the grass, or it will kill it and leave unsightly brown streaks on the lawn. If the weeds are too numerous to be destroyed by this plan, the only remedy we can suggest is to dig up the lawn, fork out carefully all the roots, and sow fresh clean lawn seed; at the same time you must remove every Dandelion from other parts of the garden, or you cannot hope to extirpate the obnoxious weeds.

Coping Boards and Brackets (E. Welland).—The brackets to which you allude as having been recommended by Mr. Abbey are represented in the annexed figure. They are of cast iron, and have at the top a lug $1\frac{1}{2}$ inch long

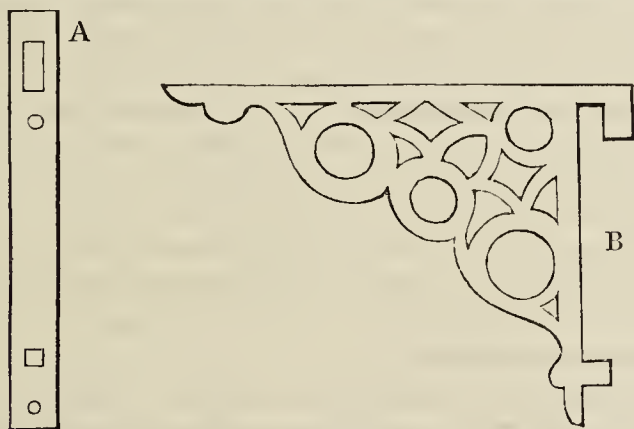


Fig. 69.

one way, and $1\frac{1}{2}$ inch the other, and a stud at the bottom which fits the lower square hole in the plate. The use of the lugs will be seen on reference to B. To fix them, all we have to do is to put the top lug through the top hole in the plate and let it drop; it will hang by the lug and cannot by any possibility fall out, and the bottom lug drops in the lower square hole in the plate. The coping-boards are then put on and will fit exactly beneath the coping; having an incline outwards, the water will drop clear of the trees. A screw will keep the board from being dislodged, a hole being at the end of the bracket, that is within an inch of the end. The whole can be taken down and put up at will, has a neat appearance when up, and there is no ugly projecting support when taken down. A well-seasoned inch deal 11 inches wide answers well for placing on the brackets for protecting the blossoms, and both boards and brackets can be quickly removed in early summer when all danger from frost is over. The boards should be well painted. We have used copings of this nature, and found them very useful as affording protection to trees on walls.

Fruit-growing (Worker).—We did not say your district is unsuitable for fruit culture, but suggested the importance of your ascertaining whether it is favourable or not before planting fruit trees largely for commercial purposes. The position is favourably situated for the sale of fruit, but the question to decide is whether it cannot be grown better in other districts and sent to your neighbourhood superior in appearance and quality, and at the same price as you can grow it yourself. If this is so—and the question is worthy of serious consideration and investigation—your prospects of success will not be of the brightest. You can get much more practical information on the subject from local fruiterers and nurserymen than we can possibly supply. The former will tell you whether they can best meet the demands of the public by locally grown fruit or with produce from other districts, and the latter will inform you of the varieties that are best adapted for the soil and neighbourhood for which they prepare trees, and if they can be depended on for yielding good crops of marketable fruit. This is the kind of information you must obtain, and it can only be had by such personal inquiries as we have suggested.

Gardeners' Wages (Mallockian).—The disparity to which you refer would be more striking if both men were required in the same place or district. We know of many excellent gardeners who have been glad to accept situations on the terms stated; and if it were not invidious to do so we could name men who started their career on wages similarly low, and even lower, but whose present position would surprise you. We are sorry to say there are numbers of really good gardeners who would not refuse a situation of the kind to which you refer, and we are equally sorry to know that there are men inferior in com-

petency who have twice the emolument stated. We also know of places in certain districts, where the wage rate is high, where foremen have 50 per cent. higher wages than in the instance you quote. To a great extent the wages of gardeners are governed by the general wage rate of the district in which the gardens are situated, except in a few of the chief establishments of the aristocracy, landed gentry, and wealthy proprietors, who take special interest in their gardens, and very properly remunerate a man according to his skill and attainments, local circumstances having no weight in the matter. The publication of your letter would do no good, but might have a contrary effect, as it would provoke retorts founded on the works and ways of hundreds of men who call themselves gardeners, but who are no credit to the craft. It is no doubt true that men who accept positions where the wages are low only do so as a matter of convenience until they can find a better appointment; it is only natural that they should do so, and it has not infrequently happened that a gentleman has been a loser rather than a gainer under those circumstances. We wish the case were exactly the reverse—namely, that employers could see the advantage of engaging well-trained, intelligent, and competent gardeners, and remunerate them according to their skill. We are intimately acquainted with not a few cases where the so-called "cheap" gardeners are in reality very costly in the end, and on the other hand we are proud to know many men who are well remunerated, who, by economy in working, produce such abundant returns that prove them to be really the most inexpensive of servants. The concluding part of your letter we quote, namely—"There are more gardeners than there are situations for them, therefore I would urge all parents about to apprentice their sons to be gardeners to think well before doing so, as gardeners are a hard-worked and very ill-paid body of men, the market being overstocked with them." The last six words contain the gist of the whole matter, and no amount of protestation and organisation can prevent anything for sale being cheap when it is abundant, and dear when it is scarce, whether it is the skill and labour of gardeners or the products of the soil.

Disbudding Fruit Trees (Novice).—Plain and practical notes on disbudding appeared on page 286 of our issue of the 6th inst.; also in "Work for the Week," on page 288 of the same issue. Those instructions you appear to have overlooked. As you require a work that will give sound information of fruit culture you cannot find one cheaper and better than our "Garden Manual," which treats also on flowers and vegetables. As an example of its teaching on the subject of which you need information we cite the following:—"The first care is to rub off all those coarse-looking young shoots which stand straight out from the wall, and look as though they were ambitious of becoming individual trees. The sooner they are removed the better. Our practice is to commence at the extremity of every shoot or branch, tracing it from thence downwards. We first remove every side shoot of young spray which appears likely to enter into competition with the leader; and this will in general cause every young shoot within 4 inches of the point to be stripped off. No two shoots of young spray should grow side by side if possible; they should, at the ultimate thinning or disbudding, stand in a regular series successively, from the collar to the extremities, all over the tree. One point of great importance we would impress on the minds of beginners in the art of disbudding; and that is, to be sure and reserve all the lowest-growing young spray all over the tree. This it is which prevents trees from becoming what gardeners term 'naked.' Of course, in fan-training, which is the most general mode (and certainly equal to any other, provided the other points of management are based on sound principles), all the branches, by radiating from centres, form a fork like the letter V. Well, then, every young spray which is situated the lowest in this letter V should be carefully preserved, and may, in order to convey a just idea of the ultimate design, be termed a 'breeder,' signifying that it is in a position to produce, by pruning, young shoots in future seasons to keep up the fabric of the tree." The price of the work is 1s. 6d., post free 1s. 9d.

Names of Plants (Young Gardener).—2, *Ribes sanguineum*; 3, *Berberis buxifolia*; 4, *Thuopsis gigantea*, commonly known and sold as *T. Lobbi*; 5, *Cotoneaster Simmonsii*; 6, *Cedrus Libani*; 7, *Abies nigra*. We do not undertake to name varieties of *Rhododendrons*, they are far too numerous, and many of them too much alike, for anyone to do so accurately without comparing them with others in a large collection. The nurseryman from whom you purchased the shrub could no doubt supply you with the name if you sent him a truss of flowers. (*Horace*).—A variety of *Anemone hortensis*. (*K. L.*).—1, *Muscari botryoides*; 3, *Ruscus aculeatus*; 6, *Nephrolepis tuberosa*. The others were too much crushed to be recognised. (*Inquirer*).—*Pyrus salicifolia*. (*Martin*).—*Narcissus incomparabilis anrantiaens fl.-pl.*, or, as it is popularly designated, "Butter and Eggs."

COVENT GARDEN MARKET.—APRIL 19.

THERE is a good supply of new hothouse Grapes now arriving, consequently the prices have fallen. Trade more brisk.

FRUIT.							
		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	0 to 6	0	Lemons.....	per case 15	0 to 20
Apricots.....	doz.	0	0	0	Melons.....	each	0 0 0
Cherries.....	per lb.	0	0	0	Nectarines.....	dozen	0 0 0
Chestnuts.....	bushel	16	0	0	Oranges.....	per 100	4 0 6
Currants, Black..	½ sieve	0	0	0	Peaches.....	dozen	0 0 0
" Red.....	½ sieve	0	0	0	Pears, kitchen ..	dozen	1 0 1
Figs.....	dozen	0	0	6	dessert.....	dozen	0 0 0
Filberts.....	per lb.	0	0	0	Pine Apples....	per lb.	1 6 2
Cobs.....	per 100 lb.	45	0	60	Strawberries....	per lb.	6 0 10
Gooseberries....	½ sieve	0	0	0	Walnuts.....	bushel	7 0 8
Grapes.....	per lb.	5	0	8			

VEGETABLES.								
		s. d.	s. d.			s. d.	s. d.	
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	punnet	1 0 to 1 6	
Asparagus.....	bundle	9	0	10	0	Mustard & Cress ..	punnet	0 2 0
Beans, Kidney....	per 100	2	0	2	0	Onions.....	bushel	3 6 0
Beet, Red.....	dozen	1	0	2	0	Pickling.....	quart	0 0 0
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3 0 4
Brussels Sprouts..	½ sieve	1	3	1	6	Parsnips.....	dozen	1 0 2
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	2 6 3
Carrots.....	bunch	0	4	0	6	Kidney.....	bushel	3 0 3
Capsicums.....	per 100	1	6	2	0	Radishes....	doz. bunches	1 0 0
Cauliflowers.....	dozen	1	0	3	6	Rhubarb.....	bundle	0 4 0
Celery.....	bundle	1	6	2	0	Salsify.....	bundle	1 0 0
Coleworts.....	doz. bunches	2	0	4	0	Scorzonera....	bundle	1 6 0
Cucumbers.....	each	0	4	0	6	Seakale.....	basket	1 0 1
Endive.....	dozen	1	0	2	0	Shallots.....	per lb.	0 3 0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3 0 0
Garlic.....	per lb.	0	6	0	0	Tomatoes.....	per lb.	1 0 2
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0 4 0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0 0 0



POULTRY AND PIGEON CHRONICLE.

INJURIOUS INSECTS.

(Continued from page 314.)

ANOTHER enemy to the crop we have been discussing is the Turnip sawfly, which lay their eggs on the under side of Turnip leaves, when they soon develop into what is commonly called the Nigger, or Black Palmer. In the year 1833 we noticed a large number of these flies very busy in the Turnip fields, but at that time, being totally unacquainted with the nature and habits of the insects, we referred the matter to an aged relative, who said their appearance was always followed by attacks of the black palmer. He said the Turnips not only suffered from the palmers eating the leaves, but also by the attempts to remove and destroy them, which was done by drawing a corn line over the crops so as to brush off the insects. This prepared us for the worst, and was valuable information. Many fields were severely attacked and the Turnips greatly injured by the niggers, as they were called by our workpeople, and in the following year they were extremely numerous. We were to some extent better prepared for them in 1834, for it was a plan generally adopted to sow Swedes instead of Turnips, as they had not previously been attacked by these insects. But the period of sowing had much to do with saving the Swedes, because the palmer seldom made its appearance until August; and our Swedes being generally sown in May had by that time become strong, coarse, and vigorous, were by no means dainty food like the young and growing Turnip plants. Still in some instances, especially if late sown or in the same field adjoining a piece of common Turnips, the palmers would travel from the Turnips on to the Swedes and eat them.

In 1834 we were thus situated with growing Swedes adjoining the other portion of the field which contained common Turnips; we found that although the fly had laid no eggs on the Swede leaves, or any palmers had been produced on them, yet they travelled from the Turnips on to the Swedes when the Turnips were nearly eaten. To protect the Swedes from injury we adopted the only plan open to us—namely, striking out a deep furrow with the plough between the two crops, and as the furrow was cast towards the Swedes, and the face of the furrow trimmed by the spade with fine loose earth, the land being extremely dry at the time, we found that the palmers could not travel over the loose and dusty earth, and that they fell back into the furrow by thousands. This gave us the opportunity to employ a man to kill them in the furrow, and by keeping the furrow properly trimmed with fine loose earth we were enabled to save a valuable piece of Swedes, although the palmers were so numerous that they entirely destroyed the common Turnips. In that year there was scarcely a field of Turnips saved in the southern, eastern, and home counties, because the attack was so general and the insects so numerous that every remedy we saw tried proved a failure. These were of various kinds. Some drew corn lines over the plants, others brushed the insects off the leaves of the plants with branches of underwood; but these methods did not save the Turnips, for the palmers constantly climbed the plants again after being brushed off, and eventually destroyed them throughout whole districts.

A plan was adopted in 1880 by Mr. Hart, as stated in Miss Ormerod's pamphlet, which consisted in driving a flock of sheep

over the Turnips for an hour three days in succession, which proved successful, and quite cleared the plants from the insects; but this must have been only a partial attack, otherwise to have trodden the insects to death must have seriously, if not fatally, injured the Turnip plants. In fact, from our own experience we cannot recommend any remedy when the visitation of the fly is so general and extensive as it proved in 1833, 1834, and 1835; in the latter year very great injury was done, but not equal to the two former years, and we have never noticed or heard of any serious or general attack since that period.

We have now to refer to the Beet fly. Until within the past few years we have been enabled to grow Mangolds with but little injury from insects after the plants had become strong with luxuriant foliage. It is, however, now the fact that for several years great damage has been done to the crops of Mangolds after they appeared to be safe with strong and vigorous leaves, but more especially in certain parts of Ireland, Scotland, and the northern and midland counties of England. The injury is caused by the fly laying their eggs on the under side of the leaves, and if this attack is general just after the plants are hoed out and singled, that the larvæ or maggot will most likely destroy the crop, and the land have to be resown with some other crop, such as late Turnips. As they do not commence depositing their eggs until early in June, the only hope of avoiding fatal injury to the plants is to drill early in April with abundance of ammoniacal manures, giving nitrate of soda as a top-dressing, as soon as the flies are noticed, in order to produce the most luxuriant growth of leaves, and thus affording the larvæ more than they can eat. In some cases those varieties which throw the most foliage are recommended for sowing. In fact, we may say that the best way to save a crop of Mangolds is to sow at the earliest period; using liberal dressing, and forcing the young plants into early maturity; this indeed is the only way which promises success. At the same time it must be considered advisable to be prepared with an abundance of strong plants of Cabbage of sorts, Thousand-headed Kale, &c., in the event of the Mangold crops failing. For although common Turnips or Swedes may be sown, they only offer a partial substitute for the lost crop of Mangolds, but Cabbages of sorts take an important position after the loss of Mangolds.

Here, again, we are met by insect enemies. These latter crops of Brassicas have their especial pests at all stages of their growth. The fly on the infant plant; the palmer and the root grub after setting out or planting; and near to the full development of the crop, in very dry seasons, we have to contend against a host of pests, including palmers and various grubs attacking the leaves, hearts, or stems of the vegetables, and in many cases the injury is such as to cause partial decay, and rendering the crops comparatively valueless for consumption by either man or beast. These are not only serious evils, but most of them we are powerless to entirely suppress, and therefore our chief object should be centered in their avoidance, and as much as possible by anticipatory action.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses will still be required in the preparation of the land for Mangolds, while the steam tackle should be continually employed in the preparation for Swedish and other Turnips. As the season seems likely to continue dry the safest plan of proceeding is to conduct the tillage as though we should get no decided wet weather during the period of cultivation, and do as little ploughing as possible, but to cultivate with the points, for this plan will lift the earth and weeds to the surface, and retain the moisture in the soil also. Potatoes are very cheap now, and large quantities are being used for feeding dairy cows and pigs. They are in consequence not costly if required for setting or planting. We wish, therefore, to call attention to the planting of the coarser sorts, such as the red cattle Potatoes and other large-cropping varieties, instead of trusting too much to Turnips, which are sure to suffer seriously in dry seasons. Where cattle food is required we not only are more sure of a full produce, but also to obtain good and clean cultivation for the land. At the

same time Potatoes are a good alternate crop upon farms where the root-cultivation has prevailed for a series of years, as both Wheat and Lent corn may be secured with more profit than when grown after Swedes. Potatoes are also a good cleansing crop, and we have generally succeeded in securing a good plant of Clover when sown in either Wheat or Lent corn grown after Potatoes. Barley-sowing should now be finished, for it is seldom a good malting sample can be obtained by late seeding, especially after Turnips fed off by sheep eating cake, or if rich ammoniacal manures have been applied, such as guano or nitrate of soda. If Barley fails to yield a malting sample it does not compare favourably with white Oats or dredge, as both these latter crops yield a large produce when the land is in high condition, but Barley is frequently the reverse.

Hand Labour.—It would be well to now examine the Mangolds in heaps or in stores, for in case they are growing out much with yellow sprouts this may further on induce heat and partial rotteness. Our plan has always been, the first week in May to turn the heaps and make them up again, carefully removing any roots partially decayed, and any yellow infant leaves; after which, if the heaps are again thatched with well-wetted straw they will preserve the roots in fine condition until after harvest if required. Top-dressing for any corn needing it should be applied now, and especially in those cases where the land is very dry by nature, such as gravel or thin chalk and sand. One cwt. of nitrate of soda mixed with the same quantity of fishery or common salt will serve to induce a quicker growth, even in very dry weather, and where the wireworms or other insects might have thinned out the plants. These remarks apply to all kinds of grain looking sickly and requiring assistance, but the application must not be now delayed.

Live Stock.—It is gratifying to be enabled to report the flocks of sheep in nearly all districts as being in good health and full of condition. It is very much in favour of the stock flocks that the catch crops, such as Rye, Trifolium, Vetches, and Italian Rye Grass, are all very forward, and this, together with abundance of grass in the irrigated meadows as well as pastures and park lands, affords a fine change of food for the animals. The mode of feeding and change of food now in course of being carried out is a folding of Rye, with Mangold cut and mixed with cake in the fine state or meal in the troughs; at daytime the sheep run on the pastures or are folded in the water meadows. This course of feeding will maintain both ewes and lambs in high condition. On various strong-land farms the Trifolium will be now fit for folding by the sheep, to be followed with the Vetches. In both cases cut roots, either Swedes or Mangolds, should be given in the fold, but in some cases the root crops have been preserved for feeding on the land where grown, and when the sheep have done feeding the land will yield another crop of sheep food, or it may be a green crop like Mustard to be ploughed in and the land sown with Wheat. Upon some strong land this is good farming and likely to secure a full crop of Wheat, which may be followed with another cereal or pulse crop. Upon the rich marsh lands of certain counties, and the fertile pastures of the midland and northern districts, the cattle for fattening may now be turned out; and if they have been receiving cake or meal in the yards or boxes they should still receive some food in the meal state mixed with cut roots in troughs on the pastures. Although we do not generally advise that cattle should lie out night and day until the first week in May, yet if the weather should continue dry the food will be hearty and the lying healthy for the animals, for it is heavy rains and frosty nights succeeding which injures the cattle. Store cattle of different ages may go out at daytime and return to the yards at night to receive their cake. Undecorticated cotton cake when pure answers well for young and growing animals, especially when the grass is young, or when they are soiled in the yards with green fodder, such as Rye and Trifolium, as it prevents diarrhoea, and is the cheapest cake for store cattle or sheep which can be given. Farm horses being now hardly pressed with tillage work should continue to receive a full allowance of hay, corn, and about 10 lbs. per day each of pulped Mangold until the green fodder crops, such as Trifolium and Vetches, are ready for soiling purposes. Swine should now be attended to by having good roomy breeding pens for the sows whilst they have young ones suckling; but as soon as the young are weaned the sows should be allowed a well-littered yard with earth at bottom and sheds to lie in, and be fed with green fodder. Any sort in use on the farm will do for them, but they should have a few peas or some maize twice a day.

POULTRY AND PIGEONS

POULTRY IN CONFINEMENT.

SOME remarks in a former Journal on poultry keeping by an "OLD FARMER" interested me so much that I decided there and then to keep a few birds. When I have had them a time longer I shall very likely send the result to the Journal, as I keep a strict debtor and credit account. "OLD FARMER" promised to send details of his special treatment to the Journal how he kept sixty

hens in health in a run of 16 yards by 3 or 4. I for one shall be glad to hear further when he can find time to communicate his treatment.—THOMAS OWEN.

THANKS to "A COUNTRYMAN" (see page 314). Since I wrote my first remarks to this Journal I have made a run within a run for two reasons—first, to have pure eggs of a distinct breed and a first cross, and second to convince myself that hens will lay in a small space as well as in my large run. This inner domain is 15 feet long and 2½ feet wide, and contains five hens and a cock. Five eggs have been gathered every day for three weeks, and we still collect one from each hen daily. Of course they have as much food as they choose to eat and a full supply of pure water with vegetables from the garden; the birds are in splendid order. The hens are three Scotch Greys and two pure Brahmas. My birds never saw a grass run, and my run has been thirty-three years on the same place, a death in it being very rare. There are two cocks, twenty-two hens, and four Ducks in the space which I gave you before—16 by 3 yards. Hens if they are properly attended may be kept on a drawing-room table, and even then they will pay for their keep. It is good policy not to keep them too long, as they run too much to flesh; but then, what is better for the table than a good fat bird from a well-kept small run? The balance sheet of my poultry yard on my last year of farming is at your service if of any use.—OLD FARMER.

P.S.—The inner run gives the birds in the large run a dry promenade, as the small one is only 3 feet high covered with wood. The large one is 6½ feet covered with wire netting all over.

[We shall be very glad to see the balance sheet of our experienced correspondent, as its publication could scarcely fail to be of interest to our readers.]

CAPTAIN NORMAN HILL ON THE POUTER.

WE have lately received a pamphlet on "The Pouter Pigeon" by Captain Norman Hill, published by the National Peristeronic Society. The gallant gentleman is evidently a great enthusiast about his special fancy. He traces the cultivation of the Pouter far back into ages past, when he believes that the Greeks, the Romans, and even the Egyptians bred it as a science. He states that he has travelled among the classic sites of Egypt, Greece, and Rome, but now finds no traces of the Pouter. From this he arrives at the broad conclusion that it is "a sure indication of the decadence of a nation where the Pouter is neglected and not cultivated as a high-class pet." As a rule, an effete and nerveless nation cultivates nothing well, from Potatoes to Pouter Pigeons, so we must own that we see no very pointed connection between the decline of these great empires and that of large-cropped Pigeons. At the same time a little latitude of imagination is generally allowed to an enthusiastic author when treating of his favourite hobby; and surely when the subject be so light a one even some flight of fancy is permissible. The critics, however, think otherwise; and we have been much amused to read in the pages of a contemporary how some of them, taking the Captain's statement as serious, have severely taken him to task for it, as if he were trying to bring in some new and false principle of historical interpretation.

Apart from this curious question of the connection between civilization and Pouters, the little essay is an interesting one. Captain Hill describes well what are the beauties of the breed. When passing through a Pigeon show we must confess to having often heard the uninitiated making by no means complimentary remarks on the Pouters. To admire them duly a trained eye and cultivated taste is of course requisite, but Captain Hill points out in a popular way in what their chief attraction consists. "All the movements, attitudes, and actions of this aristocratic-looking Pigeon are stately and dignified; its immoderate pride is innate, and is visibly displayed in the desire to puff up and elevate itself above its less exalted fraternity." This is a true description of first-rate Pouters. We have always thought that we have never so thoroughly appreciated the characteristics of the breed as when once we saw a splendid pair together, the property of Captain Hill, at one of the shows of the Peristeronic Society at the Crystal Palace.

The sociability and confiding nature, too, of the Pouter, which make it so suitable a breed for a fancier who lives among his birds, he sets forth pleasantly. "Pouters are naturally of a very sociable, sensitive, and fine disposition, becoming very tame and familiar, even showing a considerable amount of intelligence when attention and kindness is bestowed on them. I have known them instantly to distinguish at a considerable distance their master, and even the sound of his voice, when not in sight, in a crowded exhibition, by suddenly changing to expressions of pleasure from being sulky or shy to strangers around them. No one can form a just estimate of

the true merits and winning attractions of this noble bird by seeing it at an exhibition caged in a narrow show pen. It must be seen stepping out majestically at home in the loft or aviary, ready and pleased to respond to the salutations of its master. This disposition renders it a most appropriate pet for the sedentary professional or mechanic whose occupation confines him at home. Whether his labours be mental or physical, an hour in the loft with his Pouters brings complete change of thought, which, as an innocent and soothing recreation to the mind, must prove salutary, especially to brain-workers." There is much advantage to a would-be, but as yet uninitiated, fancier in having the characteristic traits of a breed of Pigeons thus pleasantly described. For the more scientific breeder Captain Hill's essay has much of interest. He considers that its essential properties cannot be reduced to fewer than nine—viz., 1, Slenderness of body. 2, Size and shape of pout. 3, Length of limb. 4, Length of feather. 5, Carriage with height. 6, Action with condition. 7, Symmetry of form. 8, Markings. 9, Colour. Bound up with this paper is the report of a sub-committee of the National Peristerion Society on the Pouter, a most scientific document, which is too terse and precise to bear analysis.

Certainly the Pigeon fancy has many able devotees who pursue it in no half-hearted or haphazard way when we find a society of them publishing one by one such elaborate standards of excellence for various breeds. Fanciers outside the Society owe it and such members as Captain Norman Hill a deep debt of gratitude for making plain many things about the points of Pigeons which were before very perplexing to the uninitiated.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Monday, April 17th, at 2 P.M. There were present Messrs. H. Radclyffe Dugmore (in the chair), T. W. Anns, R. A. Boissier, G. B. C. Breeze, A. Comyns, S. Lucas, C. F. Montrésor, and L. Norris.

NEW MEMBERS.—The following new member was elected:—M. W. Wemyss-Colchester, The Wilderness, Mitcheldean, Gloucester. The following new Associate was elected:—R. Whitton, Hilton House, Lincoln. Rev. G. V. S. Shaw, late an Associate, was elected a member.

DISQUALIFICATION AT GOSFORTH SHOW.—The consideration of this case, which had been adjourned since the previous meeting, was resumed. At the Gosforth Show, held on the 17th and 18th of February, Mr. T. Dowell exhibited a Black Red Bantam cockerel and also a Brown Red hen. The Black Red cockerel took first prize, and also won the medal for the best in the Show; but the Brown Red hen was disqualified by the Judge, who discovered staining matter on its face. As the result of this disqualification all prizes won by Mr. Dowell were forfeited, and a bird belonging to Mr. Elliott, one of the Secretaries of the Show, took the position consequently vacated by Mr. Dowell's Black Red Bantam cockerel. The staining matter was removed from the hen's face with a handkerchief, on which it produced a mark somewhat similar to an ink stain. Mr. Dowell on his arrival at the Show claimed to have the case investigated and the bird examined by the Committee of the Poultry Club, under whose rules the Show was held. This was agreed to be done, and the bird was retained by the Committee of the Show. On the 28th of February the Hon. Secretary of the Poultry Club received from Mr. F. Farr, Mr. Elliott's Co-Secretary, a letter containing a pocket handkerchief, which he said was, on a part indicated, marked with the stuff which came off the head of the Bantam disqualified by the Judge. The letter contained no other particulars, and although the Hon. Secretary of the Poultry Club wrote at once for fuller information, his letter was not replied to. On the 3rd of March a letter from Mr. Dowell appeared in the *Live Stock Journal*, complaining that although the bird had been retained for the purpose of being forwarded to the Poultry Club Committee, it had not been so sent, and that he had on the 21st of February received a telegram from the Treasurer of the Gosforth Show, saying that the Committee had decided not to send the hen for inspection by the Committee of the Poultry Club. The hen was subsequently sent to Mr. Dowell, but the basket containing her was returned by him unopened.

Mr. Dowell requested the Committee of the Poultry Club to take up the case, and statements were forwarded by each side to the Committee of the Club. The Secretary of the Show alleged that the reason for neglecting to send the bird for inspection to the Committee of the Poultry Club in the first instance was that the bird had frequently been taken out of its pen by Mr. Dowell and his friends on the second day of the Show, and that consequently it was not in the same state as when disqualified by the Judge. The Secretary of the Show subsequently offered to send the bird to the Committee of the Poultry Club for inspection; but at the meeting held on the 31st of March it was decided that after such a lapse of time this would be useless. The Secretary of the Club had several communications with Mr. Dixon, who officiated as Judge, as to the case. The following resolution was passed—

"After careful consideration of the subject and communication with Mr. Dixon, who officiated as Judge at Gosforth Show, it appears to the Committee of the

Poultry Club that the evidence of Mr. Dowell's having fraudulently coloured the Brown Red Game Bantam hen's face is wholly insufficient, and they accordingly acquit him from any imputation on his character. At the same time they record their strong condemnation of the management of the Show, and of the practice of the Secretary of a Show being, as in this case, also a competitor."

RAILWAY CHARGES FOR CONVEYANCE OF POULTRY.—A letter which appeared in the *Live Stock Journal*, signed James Eley, suggesting that the Poultry Club should take the subject of railway charges in hand for the purpose of bringing it under the notice of the Parliamentary Committee appointed to inquire into the present railway charges of the United Kingdom, was read and the matter discussed. The opinion of the Committee was, that in order to justify them in taking action in the matter it would be necessary for them to have evidence as to particular cases of overcharge, and the Secretary was directed to request those who had any ground of complaint to forward a statement of the same to the Club.

NEXT MEETING.—The next meeting of the Committee was fixed for Wednesday, May 3rd, at the Charing Cross Hotel, at 2 P.M.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane, London, W.C. April 18th, 1882.

CRÈVE-CŒURS.

AMONG the celebrated Normandy table fowls one of the most esteemed by the French are the Crève-Cœurs. This variety of fowl is quiet, domestic, great layers of large eggs, hardy, prolific, easily fattened, and of the first quality for the table. They are very precocious, since they may be put up to fatten at the age of three months, and they are ready for table in fifteen days after. At four months old a fowl of this breed has reached its full perfection as to weight and quality. A full-grown pullet of five or six months attains the weight of 6½ lbs. when fattened, and weighs 4½ lbs. dressed for the cook. They are very tame, ramble but little, and prefer seeking their food on the dunghill in the poultry-yard to wandering afar off. They are somewhat later in laying, and perhaps lay less frequently than the common French fowl, but their eggs are much larger, and they continue to lay a longer time. While there is no doubt of their value as table fowl, they lack that hardiness which is demanded in cold districts, and their chickens are not hatched and reared with facility where cold damp weather prevails.—(*American Cultivator*.)

EPWORTH POULTRY SHOW.—We have received the schedule of this Show, which includes seventeen classes for poultry, a silver cup being offered for the best pen of Game, and twelve classes for Pigeons. Prizes are also offered for cage birds, rabbits, butter, eggs, &c.

OUR LETTER BOX.

Renovating Pasture (*Spencer Pratt*).—The present is a very good time for sowing grass seeds in your field, and the most practical advice we can give you is to state the present condition of the pasture, the nature of the soil, and the acreage to be renovated, to a seedsman or firm who pays special attention to this subject, and you may rely on receiving the right quantity of a suitable mixture for effecting your purpose. In sowing first disturb the surface with light sharp-toothed harrows, then sow, afterwards running the bush harrow over the ground, following with a roller.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882. April	Baromet- er at 32° and Sea Level	Hygromet- er.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun. 9	30.273	48.0	44.6	N.	47.2	61.6	35.7	114.2	29.8	—
Mon. 10	30.149	42.9	41.0	N.E.	47.6	52.2	36.2	69.4	30.4	—
Tues. 11	29.932	42.9	41.7	N.	46.7	60.6	34.9	105.9	27.4	—
Wed. 12	29.805	51.0	46.2	S.E.	47.3	58.2	36.9	81.3	29.1	0.088
Thurs. 13	29.429	49.3	48.5	S.	47.8	54.4	46.8	70.5	43.8	0.375
Friday 14	29.279	51.4	47.1	W.	47.8	60.8	45.3	116.6	39.9	0.012
Satur. 15	29.376	52.3	50.0	N.W.	47.8	58.5	41.2	115.2	33.3	1.043
	29.749	48.3	45.6		47.5	58.0	39.6	96.2	33.4	0.518

REMARKS.

9th.—Still fine with sunshine, but more cloud.
10th.—Fair, but overcast and dull, with cold wind.
11th.—Fine and bright.
12th.—Fine, but more overcast.
13th.—Morning showery; rain continuing in afternoon; fair, but damp evening.
14th.—High wind and rain during night; showery morning; fine afterwards.
15th.—Calm and warmer morning; colder and windy after part of day.
Temperature rather lower than that of the preceding week, but still above the average. On the whole a fine and fairly bright week, but the weather was more unsettled than it had been for some time.—G. J. SYMONS.



27th	TH	
28th	F	Quekett Club at 8 P.M.
29th	S	
30th	SUN	3RD SUNDAY AFTER EASTER.
1st	M	
2nd	TU	National Auricula Show (Northern Section), Manchester.
3rd	W	Society of Arts at 8 P.M.

CORDON FRUIT TREES.

THE fact that most sorts of Pears and Apples are influenced by the stock upon which they are grafted is important in every method of culture, but is especially so in the cordon system, affording the fruit-grower for market quick and sure profit for capital expended, and everybody abundance of fine fruit quickly—so quickly that opponents of the system have repeatedly declared that this very precocity must lead to its downfall, for trees bearing fruit so early could never become robust, healthy, and fully developed, but would soon deteriorate, and either remain sickly attenuated objects, quite useless for the production of fruit, or die. But they are wrong. The system is a triumphant success. Year by year the trees improve, the stem and spurs becoming larger, blossom and fruit more abundant. Why? Simply because the fruit crop has always been kept within due bounds, and thinned in proportion to the strength of each tree. In 1879 it was said of the famous Holme Lacy cordons that they had been in bearing fourteen years without showing any signs of canker or decay, and were then as robust and healthy as when planted, and almost all of them had produced large crops of fruit every year.

For Pear cordons preference is always given to the Quince stock. Some delicate sorts do not, however, answer when budded upon the Quince, and for such double grafting has been resorted to with complete success, the weaker kind being grafted upon a robust sort growing upon the Quince. Considerable experience and sound judgment are requisite for this process. Burbidge says in his valuable book, "The Propagation and Improvement of Cultivated Plants:"—"It must not be concluded that to graft a free-growing sort of Pear on the Quince, and then to regraft it with the desired sort, will always answer. Some kinds require the stock belonging to their race. this can only be found out by the clever cultivator; as, for instance, the Jargonelle on the Beurré d'Amanlis, the union of which is so perfect, and the trees thus formed so healthy, that an acre of double-grafted Jargonelle Pears would be a little fortune to a gardener. Gansel's Bergamot double-grafted becomes a marvel of fertility, and the sorts raised by the Rev. John Huyshe, all of which are of great excellence, become most fertile trees when double grafted on the proper kind of stock." I have cordons so grafted of Jargonelle, Gansel's Bergamot, and Huyshe's Victoria, and they certainly are wonderfully prolific, Victoria being especially remarkable for the abundance and excellence of its fruit.

Apple cordons should be on Rivers' Nonsuch Paradise stock, which is superior to the French Paradise for cordons, not only

for its excellent dwarfing property, but also for the fertility and the late-blooming habit which it imparts to the scion. For example, I have that popular Apple Cox's Orange Pippin on the free stock, the French Paradise, and Nonsuch Paradise. The first, though fourteen years old, has never had a full crop; the second at first grew strongly, and came slowly into fruiting, but the dozen trees on the Sawbridgeworth stock are alike remarkable for dwarf growth and early fruitfulness. Planting them was quite an afterthought, but it has proved a most valuable one, and I strongly advise fruit-growers who regard Cox's Orange Pippin as a shy bearer to try it upon the Nonsuch Paradise.

The earliness of the blossom of so many of our best varieties of Apples, and its consequent frequent destruction by frost and cold winds, should induce greater attention to the importance of securing late-flowering stocks calculated to retard the bloom as much as possible. It is surprising that more attention has not been given to a matter of such importance. I have known seed of many kinds sown indiscriminately for free stocks, and believe it is the common practice. The late blooming of Court Pendû Plat and its comparative immunity from frost is well known, and should be turned to account by using it as the stock for standards and large pyramids, or by a system of double grafting it might tend to correct the early-flowering tendency of the French Paradise.

Single diagonal cordons have been strongly recommended for general culture, because trained as they are at an angle of 45° a greater length of stem is gained than could be if they were trained vertically. The direction in which diagonal cordons are trained appears to me quite immaterial. Du Breuil says if the wall is from north to south the trees should incline to the south to afford as much light as possible to the underside fruit branches. I have, on the contrary, found them answer admirably when inclined to the north. The upper spurs of an inclined tree are always strongest, whatever be the direction of the incline. Beurré de l'Assomption, Citron des Carmes, Beurré Superfin, Doyenné du Comice, Fondante d'Automne, and Maréchal de Cour are all bad in this respect, but they are, nevertheless, highly valued and bear plenty of fruit, which is far more important than mere appearance; and the wisdom of hard pinching of the upper growth to induce stronger under growth for the sake of symmetry is certainly questionable when done at the expense of fruit. Many of our best Pears, however, give very little trouble in this way. Some are perfectly symmetrical. A Knight's Monarch now in full bloom is a striking example of this, and I question, if it were cut off a foot from its base and taken away from the wall now, if anyone could tell which way it had inclined.

To vertical cordons no objection can be taken about lateral growth, and I strongly prefer them for walls and buildings over 10 feet high. Practically no building can be too lofty for them, and every nook and angle may be turned to account. This fact is of especial importance to the occupants of villas, farm houses, and cottages having no walled garden, for although cordons answer well trained to fences, yet walls of any kind are infinitely preferable for the greater certainty of a crop which they afford, as well as the superior flavour of the fruit. So far as was possible I have tried Pears of known excellence both as pyramids and against walls, and have found a marked superiority in the wall fruit generally. Madame Treyve from the wall has been delicious, while it has been uneatable from a

pyramid. Benrre d'Anjou, Benrre Clairgeau, Louise Bonne of Jersey, Fondante d'Automne, Comte de Lamy, Williams' Bon Chrétien, Winter Nelis, and Doyenné du Comice, all repay well for a place upon the cordon wall, the last sort especially, for the pyramids of it so often fail, when the cordon almost always has a crop.—EDWARD LUCKHURST.

TELOPEA SPECIOSISSIMA.

MUCH attention was attracted by Mr. C. Green's flowers of *Telopea speciosissima* at Kensington early in the present month, partly by their beauty and partly from their rarity. Like many other handsome Proteaceous plants, this *Telopea* has been greatly neglected in recent years, perhaps because there is a general idea that such plants are extremely difficult to grow; and further, there has been so great a demand for quick-growing plants, that those of the hardwood type have to a considerable extent become neglected. For general utility, it is true, Proteads cannot be recommended, but in many establishments the object is to have a representative collection of plants, and sufficient recommendation is the possession of handsome flowers, even though these are not produced quite so freely as Zonal Pelargoniums. As to the difficulty attending the culture of *Telopeas*, *Banksias*, or others of similar habit, it is not so great but that it can be overcome with a little care, and when the plants are in flower the cultivator will be amply rewarded for his pains. In past years it was not an uncommon circumstance to see fine and well-flowered specimens of this class at the chief metropolitan exhibitions amongst miscellaneous collections in groups or otherwise; but now, even when flowers only are shown, as in the case of the *Telopea* now especially referred to, they are regarded as curiosities. This is regrettable, but it is satisfactory to note that in a few establishments they still receive attention, and possibly some of the best may again come into favour, though it is doubtful if they will ever regain the position they once held.

Telopea speciosissima, it may be remembered, is the Waratah of New South Wales, where it is considered by the colonists as one of the most handsome of the indigenous shrubs, its large conical *Rhododendron*-like heads of scarlet flowers being produced very freely, and except in the foliage, which has the margin cut, the plants must resemble *Rhododendrons* to some extent, especially in habit, being compact and rounded, the heads of flowers being terminal. It is said that in the colony the plant is a great favourite with the bees, as the flowers possess abundance of honey, and therefore it is useful as well as ornamental. In old works the *Telopea* is described as an *Embothrium*, and a very good coloured engraving was published in the "Botanical Magazine" in 1808, where it is stated that the plant was then grown in Loddiges' nursery, but a plant was first flowered in the garden of J. A. Woodford, Esq., at Springwell, Hertfordshire.

A warm greenhouse is best suited for the plant, and a compost of light turfy loam with peat and sand is required, well draining the pots, the latter being a very important point, as water must be liberally supplied when the growth is advancing. Probably it would be rather difficult to obtain plants now from nurserymen, and the best way for anyone who wished to grow it would be to endeavour to secure seeds from Australia, or, if procurable, rooted layers from a plant in England would be preferable.—L. C.

VINES AT LONGLEAT.

(Continued from page 297.)

GIVING AIR.

ONE of the first lessons to be learned on this subject is that the ventilation of plant and fruit houses in general is not for the same purpose as the ventilation of a dwelling house. In the dwelling house the ventilator is or should be used for the egress of air which has become unfit to sustain healthy life, and for the ingress of that which is fresh and contains in abundance the gases necessary for our existence. When the modes of heating were more imperfect than they

are now, and sulphurous fumes were at times sent forth from the flue, it was necessary to provide means for their exit; but the heating by hot water in the present day, provided the apparatus is sufficiently powerful for the purpose, emits nothing injurious to plant life, and if we except the period when the Grapes are colouring there is now generally sufficient interchange of air between the laps of the glass to keep the plants supplied with all they want in this respect. The only other time when there is likely to be a deficiency is when the internal and external temperatures are nearly the same, and in such cases it is sometimes advisable to use a little fire and a little ventilation, but up to the time of colouring, unless a house is glazed closer than I ever saw one, it is not necessary to open the ventilators merely for an interchange of air. "What!" says an old hand, "do you, then, condemn the 'clink' of air at night which we have so often been told is the secret of success?" Decidedly I do, when used for the purpose just indicated. I do not, however, condemn its use during the flowering period, but its purpose then is different, nor during very mild weather at any time, and I recommend its constant adoption after colouring has commenced; but generally speaking, to use it at other times is to waste fuel. The greater the disparity between the internal and external temperatures the more secure will be the ventilation, but many a time have I seen ventilators thrown open when the plants had already too much air. This cannot, however, always be avoided, and occasionally I have to resort to the practice myself, as, for instance, during such weather as we frequently experience in March, when the sun shines powerfully during a rough cold wind, and we are obliged to ventilate in order to prevent the temperature rising to a dangerous height. This shows a defect in our system of ventilation which we hope some day to see remedied. Meanwhile where there is convenience for it we open on the side opposite to that from which the wind comes, allow the temperature to rise as high as we dare, and by stopping the fire early and frequently damping the interior of the house we endeavour to reduce to a minimum the ill effects of too much harsh air.

For all practical purposes I think I may safely say that, when my system of cultivation is followed, that giving air up to the time of flowering is only for the prevention of too high a temperature. Then, as our methods of ventilation are admittedly imperfect, we must try to prevent as far as possible the evil consequences of such imperfections. By having my Vines 5 or 6 feet below the top ventilators I have great advantages in the way of getting the air tempered before it reaches the tender foliage which are not to be found in any of the old-fashioned houses. In a house which is ventilated, for instance, by sliding lights, when they are opened a foot wide the part of the Vine in that foot of space is quite as badly off as if it were suddenly turned outside the house altogether. That the part so situated thrives fairly well is only a proof that the Vine is very accommodating, and not that the system of culture is the best. Those of my readers who occasionally indulge during winter in the luxury of a tepid bath, and know that the opening of a door ever so far away from them into their bath room, even for a moment, does not add to their comfort, may imagine the effect of a sudden rush of cold air on to the tender foliage. Not only in many cases is the cold air allowed

to reach the foliage, but the latter is altogether bodily turned into the frosty air after being subjected to a whole night's stewing.

To minimise the evil effects of giving air it should be given when there is the least possible difference between the internal and external temperatures, and in order to do this we must study the weather somewhat. By watching the clouds and in many other ways we may with practice tell within a little how much air is likely to be wanted on a certain house during the day, and then by beginning early we may, if the weather is settled, admit all the air we are likely to want before there is much rise of temperature, and when this is done giving air is a very simple matter.

We will suppose we have a house facing the east in which the night temperature aimed at is 55° , and the mercury stands at that figure or 5° lower on a bright calm morning. I should not wait for it to rise even half a degree before affording ventilation, and the mode would entirely depend on the outside temperature. Supposing the outside temperature to be only some 5° or 10° lower than that of the house, then I do not hesitate to open the ventilators so soon as the sun touches the glass to one-fourth of the extent they are likely to be required open during any part of the day. However, it is not safe to begin ventilating on so large a scale till we have had considerable practice with the particular house on which we are operating. The thing to be aimed at is to admit the air early, and to let the rise of temperature nearly all take place afterwards. For beginners it is best to give a little air as quickly as possible, then watch the thermometer, and if the mercury is inclined to go upward give a little more and watch till it shows symptoms of rising again. This should be continued till by watching and slightly increasing the ventilation a little at a time we have as much on as is likely to be required any time during the day, and this before the internal temperature has risen more than 2° or 3° . What happens in regard to the temperature one day will be a guide for the next if the weather is of a similar kind. But this question of the weather I find is an exceedingly hard one for young men to master. After a day or two days' tuition an intelligent lad is generally quite safe so long as the weather remains exactly the same, but the buoyancy of his nature I suppose makes it all fine weather to him, and changes unless they are great are unnoticed.

When a house faces south the sun has not much power on it even at midsummer before six o'clock, and that hour is sufficiently early to begin ventilating unless it is when colouring has commenced; but a house facing east is never safe during summer to be left later than five o'clock, and at critical times it should be attended to as early as 4.30 A.M. If I enter a house with which I am pretty well acquainted at ten o'clock on a bright day for the first time I can generally tell if the air has not been given sufficiently early without using my eyes; for supposing every ventilator then is open to its full extent, nothing that can be done that morning will make amends for an early neglect, and there is a want of that comfortable sort of feeling which I cannot describe, but which is instantly detected by an experienced enthusiast of early ventilation who loves his plants only slightly less than he loves himself, and cannot help feeling uncomfortable when he imagines they are so.

Air-giving during a typical March day is a much more difficult matter with our modern light-built houses than with those older ones of small panes and thick rafters, and to know what to do for the best when there is alternate sunshine and shower often puzzles the most experienced amongst us, and it is extremely difficult to give advice on the subject. The only advice I shall attempt to give will be general, and that is to anticipate the weather as much as possible, and reduce the air immediately after (or, what is better, before) the disappearance of the sun if it is likely from the look of the clouds to be invisible for some time, and to be ever on the alert when the clouds are getting a little thinner, to be, if possible, slightly in advance of the sunshine in re-opening. A minute too late at such times is often quite sufficient to disfigure a whole house, and many a time have I run half a mile to see that all was right when I have not had sufficient confidence in the attendant. But a trusty man who can go about his work without any directions at such times is invaluable, and I invariably find that nothing but a little careful tuition in the first rudiments of the different branches of the profession is necessary to put such a one in the way of becoming a first-rate gardener in every respect. During the early part of a day when the weather is extremely changeable I think it is best not to aim at a high temperature, but merely to keep a safe one, and then unless the Vines are in flower or the Grapes colouring to close early in the afternoon and allow the highest temperature which is considered safe. Should the temperature by any accident or neglect ever get too high before air is admitted it must on no account be lowered by that process; the very slightest opening may be made to prevent a further rise, and the floor of the house may be sprinkled. When a cloud is only a small one and likely to be passed in a few minutes it is unnecessary to reduce the ventilation.—WM. TAYLOR.

(To be continued.)

PRUNING AND MANURING ROSES.

YOUR esteemed correspondent, "J. A. W., *Alderminster*," hardly does me justice in his criticism on what I wrote under the above heading in your issue for March 30th. I did not advocate the total disuse of manure in the cultivation of the Rose: and if those of your readers who are interested in the matter will refer to my former communication they will see that I do use it, and only advise others against using too much, believing that most growers who can afford to do so give far too much. I for one am perfectly satisfied that gorging Roses with manure is not conducive either to their longevity or floriferousness. One important particular your correspondent leaves out in his proposal for a number of growers to grow a few plants on what he calls my plan, and that is the matter of climate. Where the growers that he has named live, the summer is not only much more hot than it is here, but comes a fortnight sooner and stays a fortnight longer. Both systems may be wrong if the withholding be done in the south and the gorging in the north. Both may be right if unlimited supplies be given in the south, and only limited quantities be given where the sun's rays are fewer, feebler, and of shorter duration.

"J. A. W." would like to see my wood now and my blooms in summer. That would give him little information. But if he could compare my sparsely fed wood now with the well-fed wood of my neighbours' bushes, and could compare my Roses in summer with those grown under precisely the same conditions except as regards manuring, I think he would become a convert. On the other hand, were we both transported five hundred miles further south, I doubt not my neighbours could show better results, if, indeed, I still pursued my present method.

The fact is, I did not write for your correspondent or the eminent growers he names, but for those whose experience in unfavourable localities may have been something similar to my

own before stopping the supplies. I agree with much that is said on page 298, but the practice might mislead those placed as I am. Indeed, the published directions to would-be rosarians, helpful no doubt to those similarly situated, have put others under greatly different conditions wrong. Shall I confess it? It was that very excellent "Book about Roses" that made me so long persist in applying manure so heavily, so mischievously. My neighbour possesses that book and stands by its teachings to his injury. The successful man has to alter his practice to suit altered conditions. Let a score of those in cold or northern localities try my plan and state the result two or three years hence. I will abide by their decision, or, rather, I will guarantee that if they are not more successful they will fail to carry out the mode laid down. Before now I have advised people to do certain things, and when failure came the blame was laid on my devoted head; and yet when all the facts became known I have been astounded to find that other things had been done that made success an impossibility, so I will only answer for what I am answerable for.—SINGLE-HANDED.

THE BIRMINGHAM SPRING FLOWER SHOW SOCIETY.

THE second annual Exhibition of the above Society was held in the Birmingham Town Hall on Wednesday and Thursday, April 19th and 20th, and horticulturally speaking was a success in every way, the exhibits being numerous and generally of high merit. The centre stage was occupied chiefly with the collections of stove and greenhouse plants, Palms, Azaleas, Rhododendrons, Ferns, &c., for competition. These formed a very important feature of the Show. Among these was one of the best bloomed plants of *Medinilla magnifica* we ever saw; it was shown by Mr. Jinks, gardener to J. E. Wilson, Esq., of Edgbaston, who we noticed was one of the chief prizewinners in the Show. A portion of this stage was also made bright by contributions from Messrs. Cranston and Cannell. The former had beautiful cut blooms of Tea Roses, and the latter a choice assortment of Auriculas, bright trusses of Zonal Pelargoniums, and a variety of Tulips well bloomed; but the most conspicuous object, and one which deservedly attracted the greatest attention, on this stage, was a select and beautiful collection of Orchids kindly lent by the Right Hon. Joseph Chamberlain, whose gardener, Mr. Cooper, evidently excels in the cultivation of these popular and interesting plants. These received an extra prize. On each side of the Orchid group were arranged the bouquets and buttonholes, all without exception being good in point of arrangement and quality of flowers, Messrs. Pope and Sons being first for bridal bouquets in the nurserymen's class.

The three groups of plants arranged for effect under the orchestra by Messrs. Hewitt, Vertegans, and Hans Niemand added much beauty to the Show. The latter showed a good plant of the new *Adiantum Lathomii*, which received a certificate.

Florists' flowers were well represented in Cinerarias, Auriculas, Pansies, Hyacinths, Tulips, Narcissus, &c. Mr. Vertegans had a good selection of his now famous double Cinerarias in various shades of colour. His Hyacinths were also very fine considering the lateness of the season. Mr. Turner of Slough contributed a few select Auriculas, which were perfect gems, as well as a box of the Golden Tricolor Pelargonium Henry Cox, which surpasses most other varieties by its superior merit in all respects. A basket of the new violet-coloured double Cineraria named Thomas Lloyd, sent by Messrs. Veitch, was much admired. This is certainly a most distinct and beautiful variety of dwarf compact habit and most free bloomer, and promises to become popular with both private and market growers.

The Committee must be congratulated upon the results of their labours, which have been attained in the face of some difficulties—not the least being the non-success financially of their last year's meeting, and the apathy apparently displayed by the influential inhabitants of Birmingham in the establishment of the Show. If his Worship the Mayor and his lady, for instance, could be induced to grace the opening of the Show by their presence, supplemented by a few remarks, as is done at flower shows generally in our large towns, we venture it is not improbable that for every half-crown ticket sold now a score would be sold then. Under the leadership of the able and courteous Curator of the Botanic Gardens, Mr. Latham, we have no doubt the Committee in a few years will make this one of the best spring shows in the country. Mr. Turner of Slough and Mr. O. Thomas of Drayton Manor were the Judges, and the Exhibition was well managed by the officials, who were courteous and attentive to all. The following is the official list of awards:—

Eighteen Hyacinths, not less than nine varieties—First, J. E. Wilson; second, J. Jaffray; third, L. Hayman. Six Hyacinths, dissimilar varieties—First, R. P. Yates. Six pots of single Tulips—First, D. Hayman; second, J. E. Wilson; third, W. Matthews. Six pots of double Tulips—First, L. Hayman; second, W. Matthews; third, J. E. Wilson. Three pots of Polyanthus Narcissus—First, H. L. Hayman; second, J. E. Wilson; third, L. Hayman. Six pots of various spring-flowering bulbs, excluding Hyacinths, Tulips, and Polyanthus Narcissus—No competition. Six pots of Lily of the Valley—First, R. P. Yates; second, J. E. Wilson; third, H. L. Hayman. Three pots ditto—First, J. E. Wilson; second, H. L. Hayman. Three *Dielytra spectabilis*—First, J. E. Wilson; second, L. Hayman; third, J. Jaffray. Six *Spiraea japonica*—First, J. E. Wilson; second, J. Jaffray; third, L. Hayman. Three *Deutzia gracilis*—First, J. E. Wilson; second, C. E. Mathews; third, W. Matthews. Three Roses in pots—First, Right

Hon. J. Chamberlain. Six Azaleas, dissimilar—First, C. E. Mathews; second, J. E. Wilson; third, J. Jaffray. One ditto—First, J. Jaffray. Three Azalea mollis—First, H. L. Hayman. Six Cinerarias, dissimilar—First, W. Matthews; second, J. Jaffray; third, C. E. Mathews. Three Cinerarias, dissimilar—First, L. Hayman; second, C. E. Mathews; third, W. Matthews. Six stove or greenhouse plants in flower, dissimilar—First, J. E. Wilson; second, J. Jaffray; third, C. E. Mathews. Three ditto—First, J. E. Wilson; second, C. E. Mathews; third, L. Hayman. Three ornamental foliage plants—First, J. E. Wilson; second, C. E. Mathews; third, Right Hon. J. Chamberlain. Three Ferns, dissimilar—First, W. Matthews; second, J. C. Bent; third, L. Hayman. Three Palms, dissimilar—First, J. E. Wilson; second, C. E. Mathews; third, J. Jaffray. Six Orchids, dissimilar—First, Rt. Hon. J. Chamberlain; second, J. E. Wilson. Six Auriculas—First, J. P. Sharp; second, J. Clements. Twelve Pansies, cut blooms, fancy varieties—First, M. Hughes. Six Rose blooms—First, J. Jaffray. Vase or epergne of flowers—First, C. E. Mathews; second, H. L. Hayman. Ball-room bouquet—First, C. E. Mathews; second, H. L. Hayman; third, L. Hayman. Bridal bouquet—First, J. E. Wilson; second, J. Jaffray; third, L. Hayman. Three button-hole bouquets—First, J. E. Wilson; second, J. Jaffray; third, H. L. Hayman. Collection of twelve varieties of cut flowers, not including more than three varieties of Orchids—First, R. P. Yates; second, J. Jaffray. Twelve Auriculas, Alpines excluded—First, J. P. Sharp; second, J. Clements; third, Messrs. Pope & Sons. Six Auriculas—First, S. Brown. Six ditto, Alpines—First, J. Clements; second, S. Brown. Six Gold-laced Polyanthus—First, Messrs. Pope & Sons. Twelve Pansies in Pots—Messrs. Pope & Sons. Bridal bouquets—Messrs. Pope & Sons.

SPECIAL PRIZES.—Mr. T. Thomson's prize for twelve Hyacinths—First, J. Jaffray; third, C. Mathews. Mr. Hans Niemand's prize for twelve herbaceous plants—First, J. L. Hayman. Messrs. Morley, E. Tonks, and Jenkins's prizes for twelve Saxifraga—First, J. E. Wilson. Messrs. Spinks & Redfern's prizes for bouquets—First, C. E. Mathews; second, H. L. Hayman; third, J. E. Wilson. Extra prizes for six Gloxinias—R. P. Yates. Extra prize for collection of Orchids—Right Hon. J. Chamberlain.

THE APPLE TOM PUTT AND OTHER NOTES.

"A SURREY PHYSICIAN" in the number for April 6th asks me about the above Apple—a query which I regret to see I have not yet answered. Although Dr. Hogg has not inserted an account of this Apple in his "Fruit Manual," it is well known to him. Thus some years since he wrote thus to me:—"I know Tom Putt well. There is an immense number of sorts I kept out of the 'Manual' because of their being local varieties and not to swell the size of the book. There are a great many of these good and bad, but Tom Putt is not one of the latter, and I shall have him and many others in the next edition." Also if "A SURREY PHYSICIAN" refers to the number of the *Journal of Horticulture* for March 9th, 1876, he will find there Dr. Hogg's "New Classification of Apples," which, if my Surrey friend has not read, he should get a copy of by all means. It is singularly instructive and valuable, and the Royal Horticultural Society showed its appreciation of its merits by awarding the author of it the gold medal of the Society. In it the Doctor has twice mentioned Tom Putt in Class I., "Eye open, cells open, and calyx tube conical;" and again in the same class among "fruit, round, roundish, or oblate." Hence Tom Putt has appeared in print among all the great Apples. I can assure "A SURREY PHYSICIAN" that it would be well to grow it where the soil does not suit that best of all cooking Apples, Dumelow's Seedling, and doubtless Messrs. Smith of Worcester could get it for him.

My trees are looking well and will bloom splendidly, and I am more and more satisfied with my letting-alone system of pruning. What grieves me is to see the amount of canker in so many varieties, Red Astrachan and Cellini dying of it and ceasing to bear; Old Hawthornden, Striped Beefin, Beauty of Kent, Bedfordshire Foundling, and Cox's Pomona canker and yet bearing; so also the Gooseberry Apple. How very few Apple trees are perfectly healthy, good bearers, and of first-rate quality in fruit! I can name only a very small number. Let fruit-lovers make a note of their own experiences during the coming year. I feel quite sad to have so much use for my large pruning scissors in cutting away branch after branch of cankered wood.

I notice that Mr. Luckhurst, whose papers I always read with interest, combining as they do professional knowledge with good sense, says in a past number, "Pyramids are so decidedly superior in appearance that I shall plant no more bush-trained Apple trees." This is a remark to be remembered. I would ask in conclusion, Has any reader had much practical experience with the Apple Gloria Mundi? Its fruit has been sent me, but I want to know its habit, and whether it produces many or only a few of its large-sized Apples, for few and large do not satisfy me. Its flavour is hardly first-class, but it is an excellent cooking Apple without doubt.—WILTSHIRE RECTOR.

BERBERIS DARWINII.

THOSE who wish to plant a bush as a memorial of the great man who has just passed away would do well to select Darwin's Barberry for the purpose, as it is one of the most hardy, free-growing, and beautiful of all our spring-flowering shrubs. It is of dwarf bushy habit, and the little clusters of deep double golden

flowers are produced in racemes, and sometimes more than a yard of the growths are thickly clothed with them. It begins flowering in February and continues until the present month. Isolated plants of it are perfectly appropriate for any lawn, pleasure ground, or park, or it may be placed among other rows or clumps of bushes. It is not difficult to suit in soil nor situation. The largest plants here are about 8 feet high and as much in diameter, and when specimens of this size are covered with flowers they are very beautiful.—J. MUIR, *Margam*.

KENNEDYA MARRYATTÆ.

THE Rev. C. P. Peach recently sent us a fine spray of the beautiful Kennedyia represented in the woodcut (fig. 70), and his

experience of its usefulness quite accords with ours. He says in a letter accompanying the specimen:—"Kennedyia Marryattæ I do not think is sufficiently known and appreciated as a winter-flowering plant. My specimen is planted in the Vine border of the cooler house, and in March of the present year was literally a sheet of flowers when looked on from above, and there was a bloom on every spray."

This species is admirably suited for a greenhouse, and can be either planted out or grown in a pot, the former being preferable. The branches should be trained to the rafters of the house, and when the bright red, almost scarlet-coloured, flowers are freely produced it has a very handsome appearance. It does not always flower so early as March, its usual season being April and May; but at whatever time the flowers are produced they usually last



Fig. 70.—KENNEDYA MARRYATTÆ.

for a considerable time, and brighten the greenhouse very much if near the purple-coloured forms of Kennedyia or any other light-tinted climbers.

HOTBEDS—MELONS IN FRAMES—PRECISENESS.

OLD Mr. Rivers, than whom no one possessed a greater share of common sense, said in the preface of his "Rose Amateur's Guide," "A practical cultivator in writing on cultivation labours under a disadvantage. He almost obstinately supposes that everyone must know something relative to those, with him, everyday operations; he is apt, therefore, not to go sufficiently into detail." No truer words were ever written, and I am afraid this reluctance to

enter into details still elings to writers, for, not being satisfied with any method of growing Melons, I sought for information. I have examined amateurs' guides, seed catalogues, and books, but I cannot get what I want. I can only grow them in a frame, and I wanted to obtain information how best to do so in an ordinary two-light frame, but I can get nothing definite how many loads of manure I require, how often and for how long it is to be turned, when the bed is to be made up; if vegetable refuse is to be used to temper the heat, whether it is too dry or moist. All these things I cannot find, and should be thankful to get them. I am told to get stable manure, to turn it several times, &c. This is like cookery receipts—add a little salt and pepper, &c., where "little" is a relative term, and one person's "little" may destroy the flavour of the dish, and so with regard to Mushroom culture. I hope when your correspondent comes to the culture we may have the details as carefully given as have been the preliminary accounts of cost, &c.—D., *Deal*.

[Detailed instructions for making hotbeds appeared on page 147 of the present volume (Feb. 23rd). On page 217 of the same volume (March 16th) "SINGLE-HANDED" described his method of growing "Melons under restriction" in a narrow pit; and on page 205, vol. ii. (March 17th, 1881), will be found an excellent paper by Mr. Abbey on growing "Melons in Cold Frames." Particulars for making hotbeds and growing Melons are also given on pp. 27 and 42 of our "Garden Manual." The height of a hotbed may vary from 3 feet to 5 feet, according to the quality of the material and the time of year it is used. At the present time 3½ feet high would be safe, the materials being good. The size of

an "ordinary" frame is not quite precise enough for determining the quantity of manure that will be needed. From four to six ordinary cartloads will probably suffice, or half that quantity if tree leaves are plentiful. Manure will not ferment if it is dry, and will not be safe for Melons if the smell from it is offensive.]

OXLIPS FROM SEED.

OBSERVING on page 324 a note under the head of "Seedling Oxlips," in which you mention never having obtained fertile seed from the true Oxlip, I therefore take the liberty of sending by this post one of my own seedlings, which, if planted at once, will doubtless produce true seedlings, as it is no doubt naturally fertilised, being a plant from the rockery here, where it is quite established, seeding itself freely all over it; and though I have had it for several years, and have Primulas of different kinds growing near it, I have never known an instance of any variation from the original stock, the seed of which was originally gathered some few years ago on the mountains of Switzerland, in the neighbourhood of the Engadin. All the plants called the Oxlip in this country that I have seen are merely hybrids, and consequently never seed, with the exception I believe of the Bardfield Oxlip, which, however, though I have had it under cultivation, never propagated itself with me by seed. The seed of all the species should be sown quite fresh.—H. M. D. H.

[The plant you enclose is *Primula elatior* of Jacquin, which has been called the Bardfield Oxlip by British botanists, because it is found in the parish of Bardfield, in Essex. This will reproduce itself from seed, and we have succeeded this year in raising one or two seedlings, which we are cherishing. But the true English Oxlip is a different plant from this, and it was to it we referred when we said we had failed to raise it from seed. We are much obliged to you for sending the plant of *P. elatior* from the Engadin, for it confirms the opinion that *P. elatior*, which yours is, is identical with the Bardfield Oxlip. We have sent you a specimen of the Bardfield collected at the English habitat, and also one of the English Oxlip from a habitat in Sussex, where it is not uncommon.]

FERTILISERS—THE ONION MAGGOT.

SEVEN or eight years ago I had charge of the gardens at Fen Place, Worth, Sussex, and was very much troubled with the Onion grub (being a new garden), and I tried an experiment by thoroughly mixing half a bushel of salt, half a bushel of soot, one bushel of lime, and a quarter of a bushel of guano together on the piece of ground where the seed was to be sown (about 3 rods). It was then strewn evenly on the ground and raked in, the drills being drawn and the seed sown. The seeds germinated well except where the above compost was mixed. Not one plant appeared there, but on the other part of the ground the result was one of the finest crops of Onions we could wish to see, and no grubs troubled them.

Respecting the space where the Onions did not come, in the autumn previous one of the garden labourers gave me a Potato weighing 9 ozs. Prince of Wales's Kidney he called it. This I kept in the office window all winter, intending to plant it in spring, but it was neglected till the Potato ground was filled, and the kitchen gardener suggested planting it where the Onions had failed. This was done, and when it began growing freely there was not enough soil to earth the stems up properly without disturbing the Onions, so some soil was taken from the potting bench. When this Potato had completed its growth no less than 17½ lbs. of tubers, or a little over two and a half gallons, were obtained. Many have disbelieved me when told of it, but the kitchen gardener as well as the present head gardener are there now, and can testify to the truth of my statement.

I have tried many fertilisers in different ways, but I have always found good guano answer best for general use, until quite carelessly I employed some of Clay's fertiliser for Chrysanthemums last July, and in a week the plants were extremely vigorous. I have tried it this year for Gardenias, Ferns, and Chrysanthemums, and find it has the same effect on them all. I use a teaspoonful to a 32 or 6-inch pot.—W. WELLS.

TULIPS ABOUT LONDON.

SINCE the middle of the seventeenth century Tulips have constantly received a large though varying share of public attention. Sometimes during that period they have been the most favoured of the florists' pets, and at others they have been comparatively neglected, but generally their brilliant colours and the early season at which they bloom have insured for them a prominent

position amongst the most admired flowers. From the time of the Tulipomania, when houses, lands, and fortunes were freely bartered for the bulbs of choice or rare varieties, the value of Tulips has been lowered to a more reasonable standard, such as would bring them within the means of a far greater number of amateur as well as professional florists. In consequence of this we now find their popularity established upon a more substantial basis than formerly, and there is one section that will probably continue to advance in public appreciation—namely, those varieties adapted for planting out of doors in beds and borders. The choicer and later florists' varieties are not so extensively grown now as they were thirty or forty years ago, and though they still deservedly find many patrons, they have in a large degree been supplanted by the bedding varieties. Tulip shows were at one time numerous, not only in the neighbourhood of the metropolis but also in the vicinity of the chief large provincial towns, especially in the north of England; these are, however, now comparatively few, and we have instead out-of-door displays in gardens and parks, which in brilliancy and effectiveness are far superior to the formal rows of plants in pots at exhibitions. During the past week most of these outdoor displays have been at their best, and in the following notes some of the most beautiful and useful varieties grown in the largest collections are briefly described.

HYDE PARK.

An admirable example of the rich and brilliant display produced by Tulips when judiciously selected and carefully planted is afforded by the beds on the east side of Hyde Park near Stanhope Gate, and a better could scarcely be desired. Though the varieties represented are not numerous some of the most effective have been chosen, and dazzling colours are agreeably relieved by others of softer hue and white. Each bed is filled with plants of one variety only, but by carefully arranging the contrasts between the adjoining beds the display is rendered both varied and harmonious as a whole. Close planting has been wisely adopted, as the object is to obtain an immediate and striking general effect, and some of the larger beds contain from two to three hundred bulbs. The latter, too, have been very carefully selected for each bed, as the flowers are in the majority of cases as level as if mown with a scythe. Altogether the display is most satisfactory and has attracted many visitors, but all who wish to see the beds at their best should not defer their visit beyond the present week.

Only a dozen varieties are grown, two double and ten single, the latter being by far the most effective, and including the following:—Duchess of Austria, of the Keyzers Kroon type, tall but strong with large showy flowers, having the red tint somewhat darker than the latter variety; Yellow Prince, an excellent yellow of moderate height, large well-formed flowers, very clear in colour, admirably suited for bedding; Rose Gris de Lin, white-streaked, a dwarf well-known and extremely pretty variety; Bacchus, rich deep red, neat flowers, dwarf, strong, and very effective; Comte de Mirabeau, an excellent variety with pure white flowers of moderate size but good form, habit dwarf; White Pottebakker, a well-known variety with much larger flowers than the preceding, but rather tall and in some instances straggling; Keyzers Kroon, an indispensable variety, flowers scarlet and yellow, large and brilliant, tall but strong; Brutus, rich scarlet red, the petals having a narrow yellow margin, flowers compact, well formed, dwarf, an excellent bedder; Joost Van Vondel, rose and white, one of the most handsome of the soft-tinted varieties. Tournesol is the only good double, the full red and yellow flowers being very fine; the other, Gloria Solis, is similar in colour, but the flowers are of rather bad form, loose and irregular.

The five large oblong beds are planted in this way: The centre one contains Duchess of Austria, on each side of which is a bed of Joost Van Vondel, the two end beds containing Yellow Prince. The smaller beds have the varieties in the following order proceeding from Stanhope Gate towards the Marble Arch:—Rose Gris de Lin, Comte de Mirabeau, Keyzers Kroon, Yellow Prince, Joost Van Vondel, White Pottebakker, Duchess of Austria, Yellow Prince, Brutus, Comte de Mirabeau, and Joost Van Vondel.

ALPHA HOUSE.

As has been previously mentioned, Captain Patton has this year grown an extensive collection. The chief object has been to obtain a representative assortment of Tulips, including all the most distinct and handsome forms which have been raised in recent years; and this has been well carried out, for over three hundred varieties are grown, a dozen bulbs of each being sufficient to show the characters and qualities for which they are remarkable. Except in a few beds there has been no attempt to arrange them artistically, as the most formal method was best suited for testing them, and, therefore, the bulk of the collection is confined to trial beds, where the bulbs of

each variety are planted together in rows, and are thus admirably situated for comparison with others both as regards habit, colour, and quality of the flowers. Viewed as a whole the visitor is enabled at a glance to form an excellent idea of the extent of variation which has been effected in the Tulip, and those especially fitted for bedding purposes can be readily detected. It need scarcely be said that of the three hundred varieties grown a large proportion are comparatively worthless and will be discarded another season, though several others that have not been tried will be added, and the collection then, though it may be smaller, will be much more select. Some have the colours dull, the flowers small or of short duration, the plants being tall, with weak stems, that give them a straggly, loose, unsatisfactory appearance, and by carefully excluding all these, and selecting the best of those that remain, Captain Patton gives the following list of single varieties as including only those that are really valuable and which he can recommend for general culture. Some of these are already well known and appreciated for that purpose.

Slingelhandt, rosy crimson, base nearly white; Mulus, fiery red painted with yellow; Lac d'Asturia, magenta margined with white, foliage variegated, very strong in growth; Purple Kroon, deep crimson scarlet, foliage variegated, very strong growth; Netscher Satinée, a dwarf variety with large purplish lilac flowers, admirably suited for marginal rows in beds, and a great favourite with Captain Patton; Molière, deep rose; Keyzers Kroon, red margined with yellow, a well-known variety; Globe du Regent, purple feathered with white; Proserpine, magenta and pink; Joost Van Vondel, both the white and red varieties; Hecla, bright deep crimson; Californian, a beautiful large, bright yellow flower; Commandant, scarlet suffused with buff; Belle Alliance, rich scarlet; Perle Blanche, pure white; Von Sehiller, a beautiful new variety with fine well-formed flowers, bright red margined with orange yellow; Ophir d'Or, very dwarf large yellow flowers. The White, Red, and Yellow Pottebakkers are tall and good; Yellow Prince, an excellent yellow variety; Baechnus, one of the strongest growers, scarlet, very good colour, foliage variegated; Chrysolora yellow, very bright; Joost Van den Vondel, a pretty new variety with pure crimson flowers feathered with white; Mon. Trésor, dwarf, yellow; Samson, crimson; Wouvermann, purple; Feu de Moscou, salmon feathered with crimson; Thomas Morus, orange yellow, feathered scarlet; Caaymans, lilac, edged white; Drapeau Rouge, deep rose pink. The double varieties at the time the above list was made were not sufficiently advanced to determine their respective qualities.

Useful as the above list undoubtedly is, considering that the selection has been carefully made from such a large number of varieties, the following is still more serviceable, as the varieties best suited for associating in bedding arrangements are named together, regard being had to period of flowering and height. In each case they are named in the order of their height—that is, the tallest are placed first, these being the best for the centre of beds, and the second of each pair for the margin, or where more than two are named the last should form the marginal row. White Joost Van Vondel and Netscher Satinée, Keyzers Kroon and Proserpine, Due d'Orange and Perle Blanche, Mulus and Slingelhandt, White and Red Joost Van Vondel, White Joost Van Vondel and Commandant, Molière and Hecla, Baechnus (variegated) and President Lincoln, Feu Felarte, Slingelhandt, and La Latiere, Californian, Baechnus, and President Lincoln, Purple Kroon (variegated) and Lac d'Asturia; White Pottebakker, Globe du Regent and Californian; the two first of the last three with Joost Van Vondel. The best doubles for beds—Gloria Solis and Arabella, Gloria Solis and Blanche Hâtive, Yellow Tournesol and La Surpassant.

One circular bed has been planted with Keyzers Kroon and Proserpine—a very handsome combination; another has been devoted to White Pottebakker and Vermillon Brillant, the former variety being very good, but the latter has not been satisfactory, as, though the colour is good, the plants are of bad habit, very irregular, and apparently not at all suited for bedding. Similar results have also been observed in other establishments with regard to this variety, which has induced many to discard it for bedding though retaining it for culture in pots. Several ribbon borders are occupied with a few of the best varieties already mentioned that mostly have flowered extremely well, and have a bright pleasant effect in contrast with the neat and admirably kept lawn.

Much credit is due to Captain Patton for the care he has taken to form so large a collection, which is both interesting and instructive, as in few establishments can so many varieties be grown for comparison and selection. With considerable liberality he has also freely invited all visitors interested in his collection to inspect both that and his collection of Narcissi.

Mr. McIntosh of Dunecvan has some beautiful beds, his selection, determined after much experience, being Chrysolora, La Belle Alliance, Molière, and Wouverman.

In the Middle Temple Gardens, Regent's and Victoria Parks, Tulips have also been advantageously employed in beds; and though the collections are less extensive than the preceding, they comprise some of the leading effective varieties very well arranged, and serve to brighten the beds considerably until it is necessary to make preparations for their summer occupants.

CUCUMBER CULTURE.

WE occasionally hear of Cucumbers "grown by express," but it is not within the reach of every grower to adopt the express system. The majority of growers cannot command a house to be entirely devoted to Cucumbers; in fact, many have to be content with an ordinary frame, and where plenty of heating material is at hand with which to make a hotbed success usually follows; but there are some who with plant houses have not the frame, or, if possessing that, cannot obtain the material necessary for the hotbed, and it is principally to those that I address the following remarks.

Here we have plant and fruit houses, but do not possess a house that can be devoted entirely to Cucumbers. We have plenty of pits and frames, but our employers prefer seeing the Cucumbers hanging, therefore we have to devote a portion of one of the plant stoves to their culture. The house in question is a span-roof running east and west. On the north side there is a pit about 18 inches deep. It is in a part of this pit that our Cucumbers are grown. After clearing out the Cucumbers in the autumn we place a quantity of manure in the pit, and there Eucharises are flowered. We do not remove the manure in the spring, as there is a flow and return of hot water immediately under in the slates which form the bottom of the pit, and which give us sufficient heat for the Cucumbers.

As we have been very successful this season it may be as well to describe the compost and treatment. The seeds were sown on the 9th of January in leaf soil and sand. The compost prepared for the plant consists of two parts loam, one part peat, and one part spent Mushroom material, and was placed in the pit about the middle of February. The plants were at this time strong and sturdy in 6-inch pots, and were placed on the beds on the 16th of February. They were allowed to grow till they reached the trellis, when they were stopped. Lateral shoots from the stem were stopped at the first leaf, and no fruit was allowed to remain on any of the shoots below the trellis. As the plants progressed they were stopped at the first leaf in advance of the fruit. As a proof that they like the compost I may mention that there are many strong leathery leaves measuring upwards of 20 inches across and more in length. We commenced cutting fruit at the end of March, when some were from 15 to 18 inches in length. The plants are liberally supplied with liquid manure, which is obtained from a tank in which the drainings from a large brewery and manure heap are deposited. They are watered with this diluted about 50 per cent. with clear water once a week; at other times they receive a little soot water. We are not able to keep a high night temperature owing to the early vinery and Peach house being on higher ground than the stove, and frequently the temperature is as low as 63° or 65° in the morning, and in frosty weather still lower; and judging by the healthy fruitful state of our plants I am inclined to think that the orthodox temperature of 70° is not essential to their well-being.

There is one drawback to the cultivation of Cucumbers in a plant stove—viz., they are so liable to be infested with mealy bug; but when this pest appears it may be destroyed by that best of all insecticides paraffin, if applied in such proportions with soft soap and tepid water as recommended by "SINGLE-HANDED" in a previous number of the Journal.

I may add that our compost is broken as roughly as possible. The roots of the Cucumber seem to resemble those of many Orchidaceous plants. They delight in an open loose soil.—CANTAB.

PHLOXES.

THESE are perhaps the most showy and useful of hardy herbaceous plants for early and late flowering that we possess. The early-flowering varieties are especially valuable; their dwarf habit and free disposition to bloom both in pots for indoor decoration as well as outside commend them to the notice of all. Plants in pots that have been stored in frames during the winter will, with the mildness of the season, be growing rapidly. These if not too advanced can be increased by division, or, better still, by striking the young growths, which root quickly at this season in

gentle heat; by this means a large stock is quickly produced. If potted after they are rooted they are invaluable for planting amongst beds of dwarf or standard Roses where the former are not planted so closely as to cover the whole of the ground. These early-flowering kinds being small growers do not in consequence rob the Rose bed or border to any serious extent, as would be the case with those of stronger growth. It is almost an impossibility to estimate the beauty of a bed or border of the pure white Phlox Miss Robertson or Her Majesty—the latter having fragrant flowers—when flowering profusely. The Marquis of Lorne, white with rose eye, and the dark rose-coloured Waverley, are by no means to be despised for planting in masses.—SCIENTIA.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Maxwell T. Masters, Esq., M.D., in the chair, the following candidates were elected Fellows:—Miss Agatha Chapman, Miss Crossman, Reginald C. Foster, Mrs. Clark Kennedy, Henry G. Morison, Major-General Power, Ralph Richardson, M.D.

— REFERRING to the MATRICARIA EXIMEA AUREA CRISPA, mentioned by Mr. J. C. Forster on page 321 of this Journal, Mr. W. H. Gower of Tooting writes:—"I have plants now coming into fine character, the foliage being as rich in colour as the common Golden Feather, and the leaves are beautifully crisped like the finest Parsley. I consider it a first-class novelty, and one which will come into general favour when better known."

— WE are informed that the annual Show of the FAREHAM AND SOUTH HANTS HORTICULTURAL SOCIETY will be held on Coronation-day, June 28th.

— "A KITCHEN GARDENER" writes:—"Those who have been troubled with MEALY BUG ON VINES last year may have done all they could to exterminate it during the winter, but it is very doubtful if they have succeeded, and as the Vines commence growth a few insects may be found about the canes. Then it is easy to destroy them, and the Vines should be examined daily for this purpose, as by-and-by it will not be so easily done."

— THE NORTHAMPTONSHIRE CHRYSANTHEMUM SOCIETY will hold their annual Show in the Corn Exchange at Northampton on November 22nd and 23rd. Numerous prizes will be offered, including four silver cups value two to three guineas each. Cut blooms, miscellaneous plants, fruit and vegetables, are also well provided for.

— THE Lord Mayor and the Lady Mayoress will hold a GRAND ROSE SHOW, on the 29th June, at the Mansion House, in aid of the proposed Scarlet Fever Convalescent Home, and of the Royal Hospital for Women and Children, Waterloo Bridge Road. The Exhibition will consist of ten thousand Roses from the gardens of the principal growers, arranged with Ferns and other accessories in an artistic manner. There will also be contributions by amateur growers, among them some of the leading citizens, who have taken up the idea with great spirit, and who, at a recent meeting at the Mansion House, promised the Lord Mayor their hearty support in the preparations. Amongst the bodies represented will be the Stock Exchange, the Corn and Coal Exchange, the Commercial Sale Rooms, &c. The Lord Mayor has entrusted the arrangements to Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace. We trust this Exhibition, instituted for such worthy objects, will be a great success.

— WE are desired to announce that the complimentary

dinner and PRESENTATION TO MR. THOMAS MOORE on his retirement from the *Gardeners' Chronicle* will take place at the Cannon Street Hotel on Tuesday, May 23rd. Evening dress will not be required. Tickets (21s. each) may be obtained on application to the Hon. Sec., Mr. Shirley Hibberd, 15, Brownswood Park, London, N.

— ON Wednesday, the 19th inst., one of the greatest naturalists of the present century, MR. CHARLES DARWIN, died at his residence, Down House, near Farnborough, Kent, at the age of seventy-three. Mr. Darwin devoted much of his time to the study of plants as well as other branches of natural history, and a brief review of his life will doubtless be interesting to many. He was born on February 12th, 1809, at Shrewsbury. His father was Dr. R. W. Darwin, F.R.S., his grandfather Dr. Erasmus Darwin, F.R.S., author of "The Botanic Garden," "Zoonomia," and other works. In 1825 Darwin left Shrewsbury for Edinburgh, where he attended the University lectures for a period of two years, at the end of which he entered at Christ College, Cambridge. He took his degree in 1831, and shortly afterwards accompanied Captain Fitzroy, in H.M.S. Beagle, on a voyage of circumnavigation. This voyage has been described by himself in one of the most delightful works in the English language, "A Journal of Researches into the Geology and Natural History of the Various Countries visited during the Voyage of H.M.S. Beagle Round the World." On his return from this voyage Mr. Darwin especially applied his attention to the investigation of the phenomena connected with the origin of species, which he pursued with great care for many years, and in the meantime published an elaborate and exhaustive scientific work entitled "A Monograph of the Family Cirripedia." In 1859 followed his great work on the Origin of Species. In 1862 he published his remarkable work on the fertilisation of Orchids; and in 1867 his "Domesticated Animals and Cultivated Plants, or the Principles of Variation, Inheritance, Reversion, Crossing, Interbreeding, and Selection under Domestication." In 1872 appeared "The Expression of the Emotions in Man and Animals;" in 1875, "Insectivorous Plants;" in 1876, "Cross and Self-Fertilisation in the Vegetable Kingdom;" and in 1877, "Different Forms of Flowers in Plants of the same Species." Only last year appeared his work on Earthworms, in which he traced the operations of worms in gradually covering the surface of the globe with a layer of mould; and as recently as last month he sent two papers upon botanical subjects before the Linnean Society. Darwin received the gold medal of the Royal Society in 1853, and the Wollaston Palladian Medal of the Geological Society in 1859. In 1875 the University of Leyden conferred upon him the honorary degree of M.D., and in 1877 the University of Cambridge made him a Doctor of Laws. He married in 1839 the grand-daughter of Josiah Wedgwood, F.R.S., the well-known manufacturer of artistic earthenware. Mr. Darwin was interred yesterday in Westminster Abbey, the Abbey being crowded with a sympathetic audience. The pallbearers were the Duke of Devonshire; the Duke of Argyll; Mr. J. R. Lowell, the American Minister; Mr. W. Spottiswoode, President of the Royal Society; Sir J. D. Hooker, late President; Mr. Alfred Russell Wallace; Professor Huxley; Sir John Lubbock, President of the Linnean Society; and the Rev. Canon Farrar. Thus has terminated a career of unusual devotion to science truly so called, and an intellect of the highest order. In disposition Mr. Darwin was singularly modest and amiable, and, as Canon Liddon has remarked, an earnest worker in "the universal triumph of truth."

— AT the meeting of the Meteorological Society on the 19th inst., Mr. J. K. Laughton, F.R.A.S., President, in the chair, a paper was read on the "BAROMETRIC GRADIENTS, WIND VELOCITY, AND DIRECTION AT THE KEW OBSERVATORY," by G. M. Whipple, B.Sc., F.R.A.S., F.M.S., and T. W. Baker, F.M.S. For

the purpose of investigating the subject of the relation of the force and direction of the wind to the distribution of barometrie pressure, the authors have discussed the Kew observations for the five years, 1875-79. The results show that the rate at which the wind blows increases almost directly with the inclination of the gradient in an arithmetrical proportion, the mean rate of increase being 1.85 mile per hour for each additional .0025 inch of difference in the barometer readings at each end of the slope. The authors find that the angle at which the wind crosses the line of gradient at Kew does not vary with either the steepness of the gradient or the velocity of the wind to any material extent, and also that the angle is found generally to lie between 40° and 60°, the average of the whole series of observations giving a deviation of 52°.

— AT the meeting above referred to a paper was also read by George Dines, F.M.S., on "DIFFERENCE OF TEMPERATURE WITH ELEVATION." In this paper the author gives a summary of his observations made at Walton-on-Thames during the last six years. Two stands, almost identical in size and construction, were used, one being placed on the ground and the other on the top of the tower of the house; the bulbs of the thermometers in the former being 4 feet, and in the latter 50 feet above the ground. The results show that the average maximum temperature for every month is always greater, and the average minimum lower on the ground than that on the tower.

— GARDENING APPOINTMENTS.—Mr. W. J. Clark, late foreman to Mr. Thomson, Kilkerran, Ayrshire, has been engaged as gardener to Mrs. Carson, Spinfield, Marlow, Buckinghamshire. Mr. John Dingle succeeds Mr. D. Smith as gardener to H. Ward, Esq., Rodbaston Hall, Penkridge; and Mr. Joseph Hall succeeds Mr. Dingle as gardener to Lord Bateman at Shobden Court, Herefordshire.

— A CORRESPONDENT, writing from South Shields, observes that "Mr. Moulton, the gardener at Ravensworth Castle, has in one of the vineries just now a fine plant of *PHILADELPHUS MEXICANUS* covered with its bunches of flowers; this he has forced for over twenty years. *Crinum amabile* is producing its flower spikes very freely. This is flowered like *Eucharis amazonica*, three times a year. The principal walk in the kitchen garden is edged with *Gentiana acaulis*, and the plants are producing their dark blue flowers freely, having a most charming effect."

— IN an interesting article upon TOMATOES FOR CANNING the *American Cultivator* gives the following particulars of the quantities grown and sold:—

"Careful estimation has placed the probable product of the coming season at 4,000,000 cases of Tomatoes, or two cans of Tomatoes for every man, woman, and child in the United States. Notwithstanding the extremely unfavourable summer there were 100,000 more cases of Tomatoes canned in 1881 than in 1880. An authority who has taken pains to collect the figures says that there were in the whole country 1,635,966 cases packed (of 39,263,185 cans), worth at the factory a total of not less than 3,400,000 dols. In two years the country has absorbed 76,034,784 cans of Tomatoes, which, at the average retail price of 15 cents per can, makes a total of 11,415,217 dols. paid by consumers for this favourite vegetable, or an average of 5,707,608 dols. per annum. Large as the quantity seems, it means a per capita consumption of about three-fourths of a can per year, or three and four-fifths cans per annum for every family of five persons. On this basis it is fair to presume that a pack double the size of last year's would in five years go readily into consumption provided prices were low and quality good. It is believed that 2,000,000 cans will be packed next summer, and find a ready market. Maryland and Virginia together report 500,000 cans; New Jersey, 427,182; Delaware and Pennsylvania, 254,082; New York, 141,552; and California, 90,000."

A VINE MYSTERY.

In my vinery there are about thirty Vines, among them four of the Black Prince. These latter broke very well, but when they had made three or four leaves the young shoots suddenly withered and died off. The eyes are now starting again. The rest of the Vines are doing well and will soon be in blossom. The treatment of

all the Vines is precisely the same. The Black Princes are not growing separately but mixed in with the rest, yet they seem smitten with paralysis, while all the others are healthy. All the Vines were bent downwards for starting, were started in February, have not been forced, but brought on gently. The house was planted four years ago, the border is good, the Vines have done fairly well and have not been overcropped. Can any of your readers explain the circumstance?—C. E.

ROYAL HORTICULTURAL SOCIETY.

APRIL 25TH.

THE Committees' duties were not very heavy on this occasion, the chief interest being centred in the Auricula Society's Show, which was held in the conservatory. Several nurserymen contributed handsome groups, Roses being especially numerous and fine. In the afternoon Mr. Shirley Hibberd delivered an interesting lecture upon Auriculas in the conservatory, which was well attended.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Mr. Lyon, The Gardens, Sundridge Park, sent a dish of Keens' Seedling Strawberries, of good size and excellent colour, for which a cultural commendation was awarded. Mr. H. Harding, The Gardens, Orton Hall, Peterborough, exhibited four dishes of Apples of the following varieties, all in good condition:—Wellington, Norfolk Beefing, Striped Beefing, and Baldwins. Mr. R. Veitch, Exeter, sent examples of Murton's Late White Broccoli, which was not considered of sufficient merit to receive an award. Mr. W. Gallop, Badford Deverell, sent a seedling scarlet-fleshed Melon, which was considered by the Committee fairly good thus early in the season. Specimens of the John Apple were sent from Chiswick, and were of very good flavour.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. J. Veitch & Son contributed a group of new plants, among which a double-flowered *Deutzia* named *Pride of Rochester* was particularly noteworthy. Several new *Crotons* and a bright-coloured *Zephyranthes* were also shown. Mr. W. Bull, Chelsea, had some Orchids and other plants, *Odontoglossum Halli pictum* and *O. Halli leucoglossum* being noteworthy amongst the former; and of the latter *Alsophila Rebecca*, a fine Tree Fern which was certificated, and *Adiantum Pacottii*, a very dwarf and neat Fern. Messrs. H. Cannell and Sons, Swanley, were awarded a vote of thanks for collections of *Pelargonium*, *Carnation*, and *Mimulus* blooms, the two former including some excellent varieties. A vote of thanks was accorded to Mr. Squibbs, Godstone, for flowers of *Rhododendron Thomsoni* very rich in colour.

In the conservatory the display of groups and Auriculas was most pleasingly varied and bright, both sides of the broad central walk being fully occupied with plants.

Messrs. J. Veitch & Sons, Chelsea, were awarded a silver gilt Flora medal for a most handsome group of standard Roses in pots, which were greatly admired by all the visitors. The stems were 3 to 4 feet high, bearing heads 2 to 3 feet in diameter, the foliage being particularly vigorous and of a healthy dark green hue. The blooms were large and of excellent colour. Especially fine were *Duchesse de Vallambrosa*, *Monsieur Noman*, *Hippolyte Jamain*, *Philip Bardet*, *La France*, *Marchioness of Exeter*, *Marquise de Castellane*, *Jean Ducher*, and *Madame Lacharme*. A bronze Banksian medal was awarded to Mr. B. S. Williams, Upper Holloway, who contributed a group of *Amaryllises*, including several good varieties, especially *Dr. Masters*, bright scarlet; *Ackermanni* and *pulcherrima*, rich scarlet; and *Loveliness*, rose and white. A box of *Polyanthus* flowers of excellent quality was also shown.

Messrs. W. Paul & Son, Waltham Cross, were awarded a silver Flora medal for a collection of two dozen Roses in pots mostly well flowered, the colours being bright and rich. The most noteworthy were *Magna Charta*, *John Hopper*, *La France*, *Pride of Waltham*, *Countess of Rosebery*, *Fisher Holmes*, and a very bright scarlet seedling with flowers of fine form. A bronze Banksian medal was accorded to Messrs. H. Cannell & Sons, Swanley, for a pretty group of *Primulas*, chiefly varieties of *P. Sieboldi* (*cortusoides*), the best being *amœna grandiflora*, *fimbriata oculata*, *lilacina*, and *marginata*. A silver Flora medal was awarded to Messrs. H. Lane & Son, Great Berkhamstead, who contributed a fine group of dwarf Roses in pots all well flowered. *M. C. Noble*, Bagshot, was awarded a silver Flora medal for a group of two or three dozen neat *Clematises*, mostly of moderate size, but well flowered, and including a number of good varieties.

Capt. A. L. Patton, Alpha House, Regent's Park, had a large group of Tulips, comprising about sixty plants of choice varieties, with some fine *Spireas* and *Dielytras*, as well as a number of Tulip blooms in glasses. Flowers of a new variety named *Alpha* were also shown; they were of good size and shape, the petals being white edged with rose. A bronze Banksian medal was awarded for this group. Charles Bown, Esq., Grosvenor House, Gunnersbury, was awarded a silver Banksian medal for a group of remarkably well-flowered dwarf standard Azaleas, and a specimen of *Maxillaria Harrisonæ* bearing nearly twenty flowers. Bronze Banksian medals were awarded to Messrs. Barr & Sugden, King Street, Covent Garden, for a fine collection of *Narcissus* blooms with many other hardy flowers; to Mr. Y. W. Piper, Uckfield, for two boxes of Tea-scented and Noisette Rose

blooms of extremely fine quality, and including a number of the best varieties—Niphetos, Catherine Mermet, President, Josephine Malton, Beauty of Stapleford, Souvenir d'un Ami, Madame Willermoz, and Maréchal Niel; and to Mr. H. Hooper, Bath, for six boxes of handsome Pansy blooms, a box of Roses, and about fifty Auriculas, chiefly Alpines and Fancy varieties. From the Society's Gardens, Chiswick, several handsome groups were contributed, one of the most noteworthy consisting of Azaleas, Ferns, Gloxinias, Chrysanthemum frutescens, Palms, Isolepis, and Selaginella, most tastefully arranged; a fine group of Calceolarias was also exhibited, the flowers being large and the colours bright.

In addition to the superb *Masdevallia imperialis* which was certificated and is described below, Mr. R. Warner of Broomfield, Chelmsford, sent specimens of a distinct *Masdevallia* named *reflexa*, similar in colour to *M. Lindenii*, but with the margins of the sepals curiously revolute. *M. roseo-violacea* is also a distinct form with light rosy-tinted flowers very freely produced. Mr. Goldsmith, The Gardens, Hollenden, Tunbridge, sent plants of his prettily variegated *Iresine formosa*. A cultural commendation was awarded to Mr. T. Horsman, Rose Mount, Ilkley, for an extremely well-flowered specimen of *Masdevallia Lindenii* in an 8-inch pot, and bearing over forty richly coloured flowers. Mr. H. Grant, Brookman's Park, Hatfield, sent plants of a pretty self Auricula named *Selina*, the colour being a soft shaded purple, the blooms large and in large trusses. Mr. Balchin of Brighton exhibited plants of *Reseda odorata prolifera alba*, which it was stated had been in flower since last January, and were then in good condition. Mr. C. Turner was accorded a vote of thanks for a group of Carnations, Auriculas, and Pelargoniums. Of the latter, the tricolor variety Mr. H. Cox was especially notable for its richly coloured foliage, and the Show variety *Martial* for its large deep crimson flowers and compact habit. Mr. H. Boller, Kensal New Town, had a large group of Aloes, Agaves, and other succulent plants.

First-class certificates were awarded for the following plants:—

Masdevallia imperialis.—This was shown by R. Warner, Esq., of Broomfield, Chelmsford, Essex, and attracted much attention by the great size of the flower and its brilliant colour. It is of the *M. Harryana* type, but much finer than any we have seen, the flowers being nearly 3 inches in diameter, the sepals spreading, broad, and rich crimson in colour.

Alsophila Rebeccæ (Bull).—A distinct and pretty Fern, with bipinnate shining green leaves about 2 feet long, with narrow pinnules.

Aubrieta violacea (R. Dean).—A very dwarf and free-flowering form, with deep purple blooms of good size. Very effective.

Gymnogramma Lauchiana grandiceps (S. Dixon & Co., Hackney).—A crested form of neat habit, the fronds being densely covered with bright yellow farina on the under surface.

Pansy Mrs. Llewellyn (Hooper).—A handsome yellow Pansy, with blooms of considerable size and excellent form.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair. *Larches Attacked by Larvæ*.—Mr. McLachlan reported on some specimens of Larch twigs received from Mr. Ralph Clutton of Hartswood, Reigate, who stated that thousands of young Larches were attacked by larvæ at Box Hill. "The affected trees swarmed with the little grubs, which move about in their cocoons and seem to suck the juices from the young foliage, leaving it dead, and so kill the trees." They proved to be the larvæ of a minute moth, *Coleophora laricella*, which lays its eggs on the twigs or buds. The larvæ hatched in autumn construct cases of the cuticle, &c. The young autumn larvæ attach their cases to the young leaves in spring, which they soon mine and destroy. Mr. McLachlan remarks on the genus *Coleophora*, of which there are about sixty species in Britain, that it is remarkable for the intimate connection between particular species of moth and particular species of plants. He is of opinion that the damage done by this insect is not likely to seriously injure Larches any more than the familiar case of the leaf-mining larva of *Cemistoma laburnellum*, which attacks the Laburnum. The application of remedies such as sulphur, Paris green, or smoke from burning rubbish on the weather side, might be too difficult or expensive, or in the latter case probably ineffectual in preventing future attacks.

Maggots at Root of Plants received from Mr. Slogrove, Galton Cottage, Reigate, were referred to Mr. McLachlan to examine and report upon.

Fertilisation of Hoya.—Mr. W. G. Smith exhibited flowers and a drawing to show how flies extract the pollinia and transfer them to other flowers. Their feet get fixed to the glutinous disks, and by struggling to free themselves they extract the pollinia. These having elastic caudicles clasp the feet of the fly, which then on alighting on another flower in a more advanced state, as *Hoya* is proterandrous, "stamps" them down upon the stigmatic surfaces. If it be a weak fly it often perishes on the flower; if a strong one it usually escapes, but sometimes leaves part of its leg behind.

Rhododendrons.—Mr. Mangles exhibited a collection of species and hybrids, of which the following were particularly worthy of note:—Hybrid between *R. Griffithianum* and *R. ponticum*, partaking much of the character of the former species in flower and foliage, with ten very large pale pink flowers arranged in a pyramid, stamens varying in number, and one of the flowers bearing six segments. The leaves are very large, of a rich dark green. This hybrid blooming for the first time is eight years old, and is hardier and dwarfer than *R. Griffithianum*. It is the first of a large series of plants raised by

Mr. Mangles by similar crossing—Hybrid between *Azalea mollis* and *R. ponticum*, having the hairy corolla of the former, but with evergreen leaves. The *Azalea* is the male; the converse cross does not succeed. Hybrid raised by Mr. Parker, the offspring of the hybrid Countess of Haddington, crossed by *R. Edgworthii*. It has large, white, scented flowers, tubular, with a dash of lemon at the base of the corolla. Of species he exhibited *R. glaucum*, dwarf, and densely covered with pink bell-shaped flowers, and highly aromatic. *R. Thomsoni* and *R. chamæistus*, an alpine species, received from Mr. Otto Forester from the Austrian Alps. It is a lime-loving plant, with pink flowers. Mr. Mangles also showed interesting hybrids from Mr. Luscombe's gardener, Mr. Dawe; also *R. Falconeri* (?) from Capt. Rogers of River Hill.

Gentiana verna.—Mr. G. F. Wilson exhibited flowers of this plant grown with and without lime. In the latter case they were grown in all kinds of soils, but never succeeded. The colour was darker, but without the white centre. With lime the plants thrived, and at once acquired their true alpine characters. Sir J. D. Hooker suggested similar experiments should be tried with *Primula farinosa*.

Leaves of Narcissus ponticus Bifurcating.—Mr. G. Bunyard forwarded leaves which had split and the ribbon-like ends had become curled. It was suggested by the Chairman that they had received some injury when young, possibly having been pecked by birds.

Oncidium sp. and Tulipa sp.—The former, sent by Mr. Heath of Cheltenham, and the latter by Mr. D'Ombrian, were referred to Kew for identification.

PLANTING RASPBERRIES.

RASPBERRIES are important amongst small fruits, and are eagerly sought after in the majority of gardens. I have noted in many instances when new plantations have been made the young canes have been left their full length. Under these circumstances a few small fruits are produced towards the top, and the growth from the base is only puny. This, though an old practice, is not a good one. Before planting the ground should be well trenched and manured, and when planted the canes should be cut down to the ground, or at the most not left longer than 1 foot; indeed they may be shortened now with great advantage if not done before. If planted in rows two canes from the base are sufficient—one being preferable—and the rest that start should be removed. The canes left will be strong and vigorous, and produce a good crop of fruit the following year, as well as remarkably strong wood.—D. W. L.

AMONG THE PRIMROSES.

A SERIES of most entertaining papers by a Sussex rector (Rev. J. Coker Egerton of Burwash) appeared in the "Leisure Hour" last year entitled "Sussex Folks and Sussex Ways." In one of these the author gives, as a type of the life of the peasantry, the following conversation:—"Don't you ever get a holiday, John?" "No, master, I don't know that I ever had a holiday in my life but once . . . on the trial." Well, but when do you look for another?" "I don't know as ever I shall have another; but there, I'd no ought to say that, for I sartinly do look for half a day before long to bury my mother."

In one respect I am like John—I seldom get a holiday; but previous to Easter I was anticipating one of a more cheerful character than that to which the Sussex peasant was looking forward. My Easter holiday was spent in one of the most beautiful parts of the beautiful county referred to, where every lane is a picture and every field and copse a flower garden. There are Primroses everywhere. The banks and knolls are studded with them in countless myriads; they peer from the hedgerows in great luxuriant masses, and clothe the ground from which the Hazels and Chestnuts have been cut, forming a carpet of loveliness. Here and there, which is not common in nature, are coloured varieties, red, but wild, and thousands of the bright Dog Violet sparkling in the sun. Did Carrington wander in the Sussex lanes, and hence was thus impelled to write—

"Amid the sunny luxury of grass
Are tufts of pale-eyed Primroses, entwined
With many a bright hued flower?"

Such was precisely the case in Sussex at Eastertide. I was in a land of Primroses, and ceased to marvel at the loads, even tons, of these lovely flowers in the markets and streets of London and wonder from whence they came. There are sufficient for all in the Sussex lanes; but the gatherers might be merciful and not tear up the roots so ruthlessly.

There are Primroses in gardens too. Perhaps it was because the wild ones flourish so well that "PHILANTHOS" was induced to pitch his tent amongst them, and raise new forms for the adornment of his garden. Marvellous is the variety to be seen there in one large bed, and more marvellous still to learn that all of them were the produce of seed gathered last summer from a

solitary plant—a Tyrian purple variety, rich and striking. The fertilisation was left to Nature, as it always safely may be in a garden of Primroses. To detail the result in this instance would necessitate the description of scores of varieties—one or two exact counterparts of the wildings in the lane, the others embracing perhaps every colour in which Primroses have been clothed, yet not one exactly like the parent, from the richest magenta, through all the gradations of purple, crimson, and rosy lilac down to clear white, one plant having flowers as large, round, and pure as Gilbert's Harbinger, but a true Primrose, the flowers being solitary, not produced in umbels like those of the fine variety named. Nor are they produced in a whorl round a central crown as is the case with many Primroses. A few are of this character, but the majority are the exact opposite, the flowers in a dense mass occupying the centre of the plant with a rosette of growths and foliage round them. It is this valuable habit that renders the plants so effective.

But such yearling plants as these could not be produced in all soils. Here it is of a marl-like or rather warp-like character, which bakes hard in the sun but is converted into powder with the smasher. Though 200 feet above the distant but visible sea, it once no doubt formed the ocean bed, and is rich in the alluvial deposits of centuries, the chalk having been washed to the sea between the downs which break the line of vision. If this were not so—that is, if chalk were present in the whitish-looking earth, Rhododendrons, Heaths, and Furze could scarcely luxuriate as they do in a medium so heavy that it can only be dug by snatches between the showers, and the lumps smashed when partially baked by the sun. Furze has been mentioned, and the double variety is represented by magnificent golden masses, such as no other shrub can equal. But Primroses are the pride of the garden. They are emphatically flowers of the past and the present, for they were the first of flowers planted in boyhood, while, perhaps because of that, they remain as popular as ever, and their charms

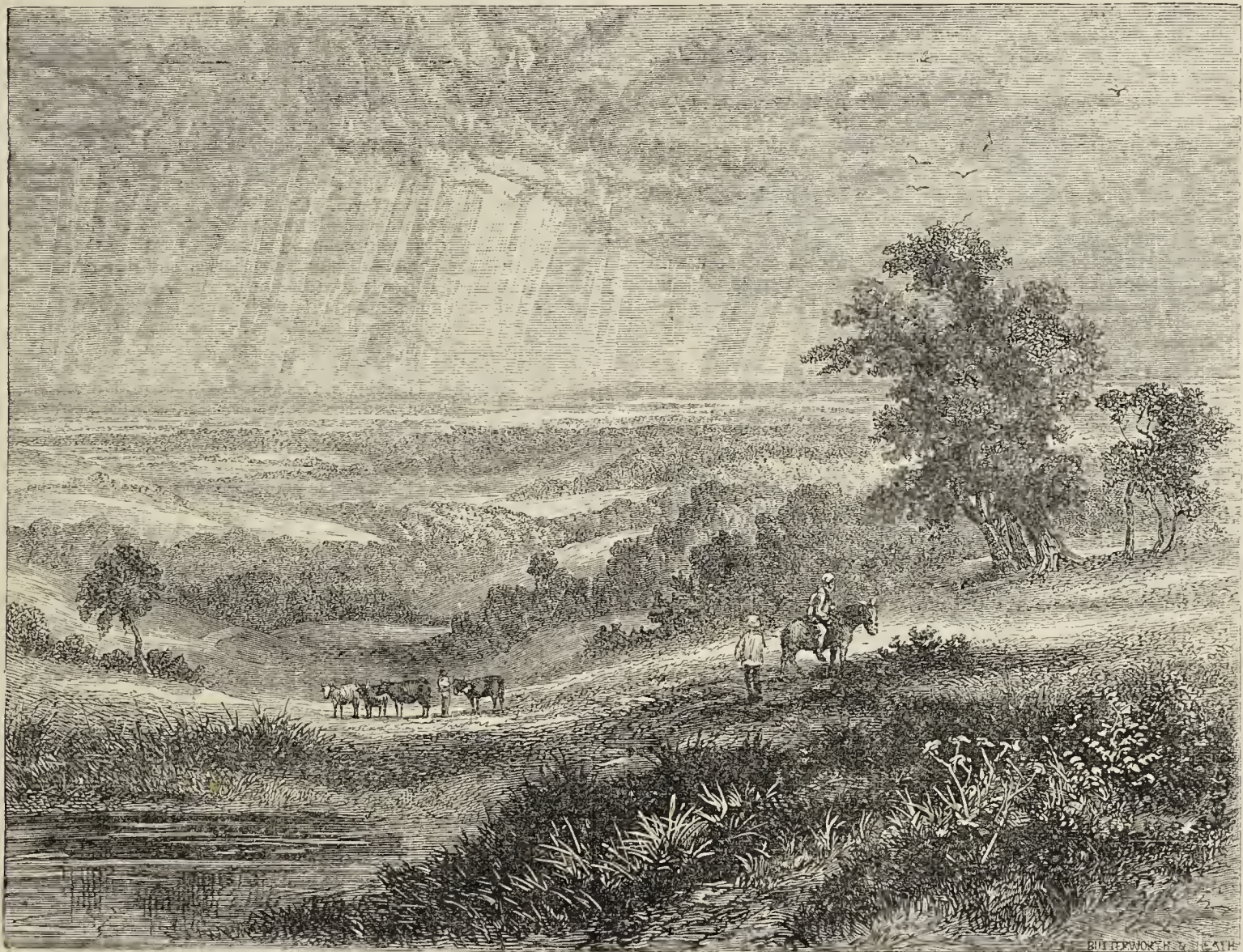


Fig. 71.—WEALD OF SUSSEX.

appear to increase with the silvery locks of those who love them. How many there are—no one can tell how many—who can say with Clare—

"In April time
I spoilt the Daisy's earliest prime;
Robbed every Primrose root I met,
And oftentimes got the root to set;
And joyful home each nosegay bore,
And felt as I shall feel no more."

But if we can no more feel as in the days of Auld Lang Syne, we shall feel no worse, and be no worse, for loving flowers, tending them and improving them, for we thus show our appreciation of the gifts so freely scattered around us.

There are other flowers in Sussex. In the garden in question a single Wallflower commands attention by its sturdy habit, dark glandular leaves, massive spikes, and large richly coloured round-petalled flowers. It is curious to observe that the only form flowering last year was *Cheiranthus hybridus*, the flowers of which are of a coppery slate colour, yet the seed saved from these produced

few plants like the parent, the majority being immeasurably superior, distinct and fine—far finer than the dark variety sold in London in such immense numbers. In the same Primrose garden are to be seen the great English and small true Bardfield Oxlips, Cowslips in many colours, Jackanapes, and other curious forms of this very sportive genus. Pinks and Carnations grow with great vigour, and Auriculas and alpine plants of all kinds thrive in a remarkable manner. There are also outside the garden wild flowers in prodigious numbers. The ground in large breadths is white with Wood Anemones.

"The flower, enamoured of the sun,
At his departure hangs her head and weeps,
And shrouds her sweetness up, and keeps
Sad vigils, like a cloistered nun,
Till his reviving ray appears,
Waking her beauty as he dries her tears."

Daffodils, too, grow wild, and they never appear to such advantage as when springing from the grass where Nature planted them. Amongst them grow the Orchises, luxuriant plants of *O. maculata*.

with thick blotched leaves and sturdy spikes uprising, and others of the genus are plentifully dotted in the pastures. Cuckoo-flowers (*Cardamine pratensis*) grow by the acre, and as thus seen the appropriateness of the popular name (Lady's Smock) is apparent when we consider that it was applied because the mass was thought to resemble a quantity of linen spread out to bleach. In damp places are golden tufts of Celandine (*Ficaria*), and in moister positions Marsh Marigolds are still more conspicuous.

Shortly the woods and copses will be filled with Bluebells, for the ground is full of them. They love the shade, and should be freely planted under trees in woodland walks. Each year the bright azure flowers will be welcome, and will never cease to come when the plants are established. It was of this plant, so plentiful in Sussex, that Elliott sang—

"Shade-loving Hyacinth! thou comest again,
And thy rich odours seem to swell the flow
Of the lark's song, the redbreast's lonely strain;
And the strains tune—best sung where wild flowers blow,
And ever sweetest where the sweetest grow."

It were easy to continue, and tell of more flowers in field and garden in this charming district—a county of richly clad hills, luxuriant dales and crookedly picturesque lanes, but not crooked people, for my lot fell in pleasant places. Space, however, vanishes, and the rest must be left for my next visit, as I am "looking forward" to another holiday where the Violets and Primroses grow in the beautiful and salubrious Weald of Sussex.—A LONDONER.

[We, like our correspondent, read the "Leisure Hour," and are fortunate in being able to submit by the kindness of its Editor a charming view of the district alluded to. The whole series of the articles above mentioned are full of interest, and worthy of the pages of the attractively instructive, ever fresh and ever welcome, publication in which they appear.]

CARBOLIC ACID v. WEEDS.

I AM desirous of obtaining some information respecting the use of carbolic acid for destroying weeds in gravel walks. Some twelve months or so ago I had a circular sent me—from whom now I cannot say—but it was in reference to some cheap article prepared to be diluted with water for destroying weeds. Perhaps some of the readers of the Journal can supply me with some practical information on the subject. I should like to hear from someone who can describe from their own experience a simple and cheap method of destroying weeds on walks either by carbolic acid or anything more suitable and effective.—KIRBY.

THE NATIONAL AURICULA SOCIETY (SOUTHERN SECTION).—APRIL 25TH.

WE have the pleasure to record the greatest triumph this Society has ever had, and to describe the Show under notice as decidedly the finest we have seen, and in all probability the most excellent that has been produced since the Auricula has been cultivated, now some three hundred years. This is rather a bold assumption, but we have no reason to believe it is over-sanguine; at any rate we leave those who can adduce evidence of a contrary nature to show that our estimate is too high.

Although Mr. B. Simonite did not enter the lists there were, we believe, the greatest number of exhibitors that have ever competed at a Southern Show, seventeen being successful, while some excellent growers failed to win a prize at all. There were also the greatest number of plants of the highest character that, so far as we know, have ever been staged together. This year the Northern and Southern exhibitors appear to have met on more equal terms than on any previous occasion. We should not have been surprised had the Southern flowers been faded; probably several plants, not at the Show, had lost their freshness, but those staged by Messrs. Turner, Douglas, and Cannell were both fresh and fine. Mr. Horner's plants were finer than last year, and although this famous grower received the greatest number of first prizes amongst amateurs, he was greatly exceeded in the aggregate number by Mr. Douglas. The greatest advance made by any exhibitor was by Mr. Penson, who, we believe, secured eleven prizes, three of them being firsts; it is noticeable, too, that he secured all the eight prizes in the class for specimen grey-edge flowers, seven of them being George Lightbody; Mr. Horner secured five first prizes out of a total of twelve (including the premier Auricula of the Show, the redoubtable George Lightbody, a sturdy plant with nine fine pips); and Mr. Douglas three out of twenty-five. Mr. Woodhead, owing to a long and serious illness, was not able to have his plants in their usual condition, but he secured six prizes, two being firsts. Mr. Turner secured five first prizes out of a total of twelve. Messrs. Llewellyn, Brockbank, and Fellowes were

also very successful in their classes. Several new and striking varieties were exhibited, those that were honoured by awards being referred to below.

The day unfortunately was unusually wet, yet in addition to the great attendance of fanciers (including "Old Job Cockroft," the oldest of Yorkshire growers), there was a fair attendance of visitors to admire the flowers and listen to Mr. Shirley Hibberd's entertaining lecture.

SEEDLINGS.—A large number of seedlings were entered in the various classes, and many were of excellent quality, well meriting the certificates awarded for them. *Green-edged.*—First, Luna (Horner), a beautiful variety, with flowers of good substance and excellent form, black body colour, broad and clearly defined paste. *Certificated.* *Grey-edged.*—First, Mrs. Moore (Douglas); flowers large and bold, exceedingly pretty, the body colour being dark—very even and clear. *Certificated.* Second, Blue Bell (Horner); very pretty, flowers large, body colour bright purplish blue. *White-edged.*—First, Mrs. Dodwell (Woodhead); flowers very neat in form, even and symmetrical, paste well defined, body colour very dark and clear. *Certificated.* Second, an unnamed seedling (Horner); flower of good form, body colour black. *Selfs.*—First, Brunette (Pohlman), a very striking variety, with large even flowers of great substance and good form, body colour deep purplish maroon, paste broad and well defined. *Certificated.* Second, Duke of Albany (Douglas), a pretty variety with neat flowers, body colour maroon, paste white and clear. *Alpine Gold Centre.*—First, Amazon (Turner); very large flower, rich shaded crimson, bold bright yellow eye. *Certificated.* Second, Princess of Waldeck (Douglas), an effective variety with neat flowers, clear shaded crimson, rich yellow eye. *Certificated.* *Alpines, Cream and White Centre.*—First, Charles Darwin (Turner); handsome flowers, rich purple shaded, very pale centre, large, but of good form. *Certificated.* Second, Ada Hardwidge (Douglas); flowers rather small but pretty, excellent shape, and very free—colour bright purple, crimson shaded. *Certificated.*

In the class for twelve dissimilar varieties the Rev. F. D. Horner, Kirkby Malzeard, Ripon, maintained his supremacy by securing the chief award with splendid plants with large trusses and bright even symmetrical flowers of good substance. The varieties were Simonite's Frank Simonite, Mrs. Douglas, Horner's Luna, Trail's Prince of Greens, Walker's John Simonite, Horner's Ajax, Horner's Moonlight, Horner's Heroine, Headley's George Lightbody, Horner's Erebus, Horner's Agamemnon, and Horner's Excelsior. Mr. E. Pohlman, Halifax, was an excellent second with a good collection, comprising good examples of Pohlman's Brunette, Read's Acme, Kaye's Alex. Meiklejohn, and Headley's G. Lightbody. Mr. T. Woodhead, Shibden Head, Halifax, was third with smaller plants bearing fine blooms. Walker's John Simonite, Charles Turner (seedling), and Mrs. Dodwell were especially noteworthy, several other seedlings being good; and Mr. J. Douglas, gardener to F. Whitbourne, Esq., Loxford Hall, Ilford, was fourth with good plants. There were six competitors.

For six dissimilar varieties the Rev. F. D. Horner was again adjudged the premier prize for excellent specimens of Headley's George Lightbody, Horner's Miranda, Walker's John Simonite, Trail's Prince of Greens, Horner's Heroine, and a green-edged seedling. Mr. T. Woodhead was a close second with vigorous plants of Turner's Charles Perry, Lancashire's Lancashire Hero, Read's Acme, and Leigh's Col. Taylor amongst others. Mr. Douglas followed with a creditable collection, in which Heap's Smiling Beauty and Douglas's Dr. Kidd, the latter being very fine in size. Messrs. E. Pohlman and H. Cannell & Sons, Swanley, were fourth and fifth respectively. J. T. D. Llewellyn, Esq., Penllergare, Swansea, being sixth out of seven exhibitors.

For four dissimilar varieties the first position was gained by R. K. Penson, Esq., Denham, Ludlow, with fresh, sturdy, and very fine plants of Lancashire's Lancashire Hero, George Lightbody, Frank Simonite, and Eliza—all of good quality. The Rev. E. L. Fellowes, Wimpole Rectory, Royston, was a close second with Hepworth's True Briton, Lancashire's Lancashire Hero, Leigh's Lord Clyde, and Read's Dr. Horner. Mr. R. Gorton, Eccles, Manchester, was third. J. M. Robins, Esq., 70, Tyrwhitt Road, Lewisham; Mr. T. Fife, Southern Hill, Reading; and Mr. W. Brockbank, Brockhurst, Manchester, secured the remaining prizes. There were ten exhibitors. For two dissimilar varieties Mr. R. K. Penson was first with Headley's George Lightbody and Lancashire's Lancashire Hero—both fine; Mr. W. Bolton, Wilderspool Road, Warrington, second with Headley's George Lightbody and Horner's Ringdove; Mr. Brockbank third with Pohlman's Garibaldi and Simonite's F. Simonite; Rev. E. L. Fellowes fourth with Smith's Ne Plus Ultra and Lancashire's Lancashire Hero; the Rev. H. H. D'Ombra, Westwell Vicarage, Ashford, Kent, fifth with Lancashire's Lancashire Hero and an unnamed plant; and S. Barlow, Esq., Stakehill House, Manchester, sixth with a seedling and Queen Victoria. There were nine exhibitors.

For fifty plants, not less than twenty varieties, including Alpines, Mr. Douglas was accorded the chief prize for a most handsome collection, including good plants of the following varieties:—Lancashire's Lancashire Hero, Douglas's Dr. Kidd, Kaye's Alexander Meiklejohn, Fife's Mrs. Fife, Reid's Dr. Horner, Trail's Beauty, Campbell's Pizarro, Turner's C. J. Perry, Cunningham's John Waterston, Campbell's Lord Clyde, and Heap's Smiling Beauty, with many others. Mr. C. Turner, Slough, was a close second with very even and beautiful plants. The following varieties were especially fine:—Kaye's Alex. Meiklejohn, Lowe's Mazzini, Kaye's Topsy, Turner's

Col. Champneys, Turner's Cheerfulness, Turner's C. J. Perry, Turner's Sultana, Sim's Vulean, and Turner's Clipper. Mr. J. T. D. Llewellyn was a good third, and Messrs. Cannell & Sons fourth.

SINGLE SPECIMENS.—*Green-edged.*—Rev. F. D. Horner was first with Prince of Greens, second with Leigh's Colonel Taylor, and sixth with Talisman. Mr. J. Woodhead was third with Colonel Taylor, fourth with Imperator. Mr. Broekbank fifth with Prince of Greens. Mr. Douglas seventh with Colonel Taylor, and eighth with Hope. *Grey-edged.*—Mr. Penson was first, second, third, fourth, sixth, seventh, and eighth with George Lightbody, and fifth with C. E. Brown. *White-edged.*—Mr. Woodhead was first with Aeme; Mr. Douglas second with Sylvia, third with Aeme, fourth and fifth with Beauty; Rev. F. D. Horner seventh with Blue Bell; and Mr. Penson eighth with Smiling Beauty. *Selfs.*—Rev. F. D. Horner was first with Ringdove, second with Blackbird, and seventh with Sappho. Mr. Douglas third with Topsy, fourth with Pizarro, fifth with Garibaldi, and eighth with a seedling. In all these classes the entries were very numerous and the competition keen.

Alpine Auriculas.—For twelve dissimilar varieties Mr. C. Turner was an excellent first with beautiful examples of the following, all his own varieties:—Unique, Ethel, Dr. Denny, Imperial, John Ball, Superb, Lady Aitehison, King of the Belgians, Wm. Fowle, Fred. Copeland, Sensation, and Philip Frost. Mr. Llewellyn was second with well-flowered plants, Mr. Douglas being third.

For six dissimilar varieties Mr. Douglas was placed first with Douglas's Amelia Hardwidge, Turner's Sensation, Meiklejohn's Mrs. Meiklejohn, Gorton's Diadem, Turner's G. Lightbody, and a seedling. Mr. C. Turner, the Rev. Fellowes, Mr. Llewellyn, and Mr. R. Dean, Ealing, were the other prizetakers in that order.

For twelve dissimilar Fancy Auriculas Mr. S. Barlow gained the principal position with plants of peculiar pale yellow, buff, double yellow, and purple varieties; Mr. Douglas being second with similar varieties, and Mr. R. Dean third, the last including several shaded Alpines.

In the class for a single specimen, gold centre, Mr. C. Turner was first with Amazon and sixth with King of the Belgians. Mr. Douglas was second with Princess of Waldeck; third, fourth, and fifth with Amelia. For a single specimen, white or cream centre, Mr. C. Turner was first with Charles Darwin, second with Mentor, third and fourth with Queen Victoria, fifth with Gladiator, and sixth with George Lightbody.

Polyanthuses.—For six dissimilar gold-laced varieties Mr. S. Barlow was placed first with Barlow's Sunrise, Prince Regent, Cheshire Favourite, Exile, a new seedling named Red Rover, very bright and neat; and Beauty of England. Mr. Bolton was second with a seedling, President, Cheshire Favourite, Earl of Lincoln, Exile, and George IV. Mr. Douglas was third. For three varieties Mr. Barlow was again first with similar varieties, followed by Messrs. Bolton and R. Dean. For a single specimen gold-laced variety Mr. J. T. D. Llewellyn was first with Whittaker's Lancashire Hero; Mr. Broekbank second with Cheshire Favourite; Mr. Barlow third with Firefly, fourth with Cheshire Favourite, and fifth with Exile; Mr. R. Dean being sixth with Buck's George IV. For twelve Fancy Polyanthus Mr. R. Dean was the only exhibitor, being awarded the chief prize; and Mr. Broekbank obtained a similar position with twelve double and single Primroses.

The only collection of twelve hardy Primulas was shown by Mr. Llewellyn, who was placed first with varieties of *P. Sieboldi*, *P. verticillata*, *P. denticulata*, *P. japonica*, *P. involucrata*, and *P. Cashmeriana*, all well flowered.

JASMINUM HIRSUTUM.

JASMINES are all favourites with plant-growers, as the majority of the species are not only extremely ornamental as climbers, either in warm or cool houses and in the outdoor garden, but they also yield such an abundant supply of fragrant flowers that their utility is unquestionable in most establishments. The one of which a spray is represented in the woodcut (fig. 72) is chiefly remarkable for its dwarf shrubby habit, which admirably suits it for culture in pots in a stove or intermediate house, where with moderate careful attention to the culture it will produce its flowers as freely as could be desired. In Bengal, where the plant abounds, Dr. Roxburgh has stated that the heads sometimes contain thirty flowers each, but in this country they do not attain more than a third of that size, usually bearing from six to ten flowers in each cluster. Even, however, in this condition they are very attractive, as not only do the shoots produce flowers at their extremities but also from the side shoots, so that the growths are often clothed with flowers for a foot or more from the apex. The leaves are elliptical, dark green, and with the petioles and stems are thickly studded with hairs, whence the specific name is derived; and the flowers are large, pure white, and fragrant, on stout peduncles, and thickly clustered.

It is considered that the first plants were sent from the East Indies to Lady Amelia Hume by Roxburgh early in the present century, though at one time it was thought to have been grown by Miller in the middle of the eighteenth century, as he mentions

Linnaeus's *Nyetanthes hirsuta*. But this has been proved to have been founded upon a specimen of *Nyetanthes arbor-tristis*.

J. hirsutum is easily grown, as it only requires a compost of light turfy loam, sand, and leaf soil, the temperature of a stove, and liberal supplies of water during the summer.—L. C.

CRINUM MOOREI—ASPARAGUS PLUMOSUS.

HAVING recently seen in the Journal (page 304) that Mr. B. S. Williams contributed a plant of the *Crinum Makoyanum* (or *Mooreanum*, as more generally named) to the Exhibition at the Royal Horticultural Society on the 11th, I beg to say I have flowered it for the last three years, and have seen it in flower quite six years ago in the houses of the gentleman who brought it from South Africa and gave it me. The flower stem of last year had thirteen lovely blossoms each about 5 or 6 inches in diameter, and I expect that it will be very fine this season, the plant looking so very healthy and strong.

The same gentleman also brought home the lovely graceful *Asparagus plumosus*, recently exhibited by Messrs. Veitch. One of my sons saw a diminutive plant of it at Chelsea, and men-



Fig. 72.—*Jasminum hirsutum*.

tioned in what luxury it was growing at his friend's, from whom I heard that Mr. Veitch had paid him a visit anxious to obtain some plants, but not successfully, though after the death of my friend I believe that he came into possession of the greater part of the stock.

I might add I have also two *Crinums* that were sent me from Durban by my son, Lieut.-Col. Walker. One flowered last year, and was considered to be *C. aquatica*. The other has now a flower stem showing, which may prove a variety. I have three fine young plants of the *C. Mooreanum* which I should be happy to part with if wished.—MARY ASTON WALKER.

ROYAL BOTANIC SOCIETY.

APRIL 26TH.

THE second spring Show of this Society was a highly creditable one, the corridor and a portion of the conservatory being fully occupied with exhibits. In the chief classes the competition was fairly good, and as usual the nurserymen's groups were both extensive and handsome, adding considerably to the effectiveness of the display. We can only briefly note the principal prizewinners and the general features of the Show.

Store and Greenhouse Plants.—Several attractive collections of these were shown, and though the specimens were mostly small they were remarkably neat and well flowered. Messrs. Peed & Son, Lower Streatham, gained the chief prize, their Azaleas Apollon and Roi d'Holland being especially fine. Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was a close second; and Mr. B. Eason, gardener to B. Noakes, Esq., North Hill, Highgate, was third out of five competitors.

Roses.—In the corridor the Roses staged proved an important feature, all the specimens being well flowered and remarkable for the abundance of the vigorous rich green foliage. In the nurserymen's class for nine plants Messrs. Paul & Son, Cheshunt, were the only exhibitors, and were awarded the chief prize for creditable examples of good varieties; but the greater portion of the display was composed of exhibits not in competition. For six new Roses sent out in 1879 and 1880 Messrs. G. Paul & Son were also the only exhibitors, taking first with Comtesse Camondo, Guillaume Guillemot, Jules Finger, Madame Angele Jacquer, Madame Isaac Pereire, and Gloire de Bourg-la-Reine. Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, was the only exhibitor in the amateurs' class, taking the first position with small but healthy plants.

Azaleas were not largely shown. Mr. C. Turner, Slough, gained the leading position in the nurserymen's class for six plants with specimens of moderate size, not formally trained but profusely flowered, the semi-double salmon red Ferdinand Kegeljan being very fine. Messrs. Peed & Son were third with small plants. The best amateur's collection was staged by Mr. G. Wheeler, who was followed by Mr. Eason.

Auriculas.—These were also well shown, but those in competition were numerous. For twelve Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was adjudged the chief prize for even good examples of Campbell's Lord Lorne, Smith's Ne Plus Ultra, Lancashire's Lancashire Lad, Mrs. Moore, Turner's C. J. Perry, Cunningham's John Waterston, Heap's Smiling Beauty, Jumbo, Kaye's Alexander Meiklejohn, Spalding's Blackbird, Reid's Dr. Horner, and Headley's George Lightbody. Mr. C. Turner and J. T. D. Llewellyn, Esq., Swansea, followed in that order.

Pelargoniums were fairly well represented, Mr. C. Turner securing the chief award in the nurserymen's class with profusely flowered plants, Maid of Kent and Venus being especially fine. Mr. Wiggins followed closely with similar but rather looser plants. Messrs. H. Lane & Son, Great Berkhamstead, were the only exhibitors of Rhododendrons, and were adjudged the chief prize for a handsome collection of large well-flowered specimens.

Mr. J. Odell, Gould's Green, Hillingdon, and Mr. Wiggins were the only exhibitors of Cinerarias in the open class for nine plants, and were placed first and second respectively with fairly good plants. The last named, with Mr. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, were the prizewinners in that order for Amaryllises, the first collection being very creditable.

The groups and collections were very abundant and handsome, including the following, for which medals and certificates were awarded:—Messrs. J. Veitch & Son, Chelsea, an imposing group of Roses and Maples, similar to that at Kensington on the preceding day; Mr. B. S. Williams, a large collection of new plants and Orchids; Mr. W. Bull, a group of choice and new plants; Messrs. W. Paul & Son, Waltham Cross, an extensive and handsome group of Roses and Ferns; Messrs. H. Lane & Son, a fine group of Roses; Mr. J. Wiggins, a collection of Roses, Azaleas, and Cinerarias; Mr. G. Wheeler, a tasteful group of Palms, Ferns, Orchids, Coleuses, and Deutzias; Capt. A. L. Patton, Alpha House, Regent's Park, a group of Tulips, Dielytras, and Spiræas; Messrs. H. Cannell & Son, Swanley, fine collections of Mimulus, Carnations, and Pelargonium blooms, with Primulas; Mr. G. W. Piper, Uckfield, Rose blooms; Mr. C. Turner, collections of Carnations, Pelargoniums, Azaleas, and Auriculas; Mr. H. Hooper, Bath, Pansy blooms; Messrs. G. Paul and Son, a group of Roses in pots; and Mr. C. Noble, a collection of Clematises.



KITCHEN GARDEN.

Sow the main crop of Scarlet Runners. Where long sticks are employed the rows should be 6 feet apart, and at a less distance with shorter sticks, or where sticks are not procurable the rows may be 3 feet apart. Surface heat with plenty of moisture at the roots are needed by Runner Beans, therefore situations possessing those advantages should be selected. The drills should be about 3 inches deep, or in heavy soil 2 inches, the Beans being placed about 6 inches apart. After the Beans have germinated in light soils raise the soil about 3 inches on each side of the row about 18 inches wide, slightly

inclining the fall towards the row, and after the sticks are placed mulch with about 4 inches of short manure, which when well saturated ensures the equability of the moisture. Make the main crop sowing of Dwarf Kidney Beans, Negro Longpod and Canadian Wonder being admirable varieties. The rows should be 30 to 36 inches asunder, and the Beans 4 to 6 inches apart, good rich moist soil being essential to success, or in light soils they should be treated similarly to Scarlet Runners.

To insure a full supply of Peas in August onwards, sow liberally of such kinds as Best of All and Stratagem of the medium heights, and Ne Plus Ultra and Emperor of the Marrows in the tall varieties, affording a deep and rich soil, or sow over well-manured trenches. Broad Beans should also be sown proportionate to the requirements of the establishment. Sow Spinach between rows of Peas. Sow Lettuce proportionate to the demand, and maintain abundance of salading, which will require liberal supplies of water in dry weather. Sow Cauliflower seed to raise plants for late summer use. Broccoli may still be sown for late use, likewise Savoy of the dwarf varieties, which are decided improvements on the large section both in regard to quality and usefulness. Plant out Cauliflowers from the early sowings as they become fit, likewise Brussels Sprouts and Lettuces.

As Potatoes advance in growth draw the soil lightly round them, and run the hoe frequently between the rows of growing crops, as well as to surface-hoe the quarters and wherever weeds are likely to appear. Where very early Celery is required the plants should now be strong in 4 or 5-inch pots, and should be planted under hand-glasses, the soil having been removed to the depth of a foot, and 6 inches of good well-decomposed manure placed in, and over it 3 or 4 inches of good soil, having three or four plants under each light.

FRUIT HOUSES.

Peaches and Nectarines.—The earliest fruit is swelling fast, and when it is ripening the syringing must be discontinued; but the supply at the roots must be ample, especially where the roots are restricted to inside borders. Attend to tying in the shoots as necessary, and if the foliage is too much crowded round the fruit the removal of a few leaves will be an advantage. When the fruit is becoming ripe some hexagon netting is useful to stretch below the trees to catch any fruit which may fall. Continue tying in the shoots, regulating them in succession houses, disbudding and thinning the fruit in the late houses, and where the trees are healthy the fruit may be regulated now to the number desired for the crop. Attend, however, to leaving the fruit best placed on the shoots for the sun and air to reach them. Syringe the trees morning and afternoon, and be careful to water inside borders thoroughly.

Figs.—The earliest crop is fast advancing towards maturity. Continue to keep the trees syringed and the roots plentifully supplied with water or liquid manure, as the case requires. When the Figs show indications of ripening gradually reduce the moisture in the house, and when the crop is fully ripening but little will be required. At this period keep the house constantly ventilated, and do it liberally whenever the weather is favourable, which will tend greatly to colour and improve the quality of the fruit. Proceed with tying in and regulating the terminal shoots, stopping the spurs at the fourth or fifth joint, and the laterals on these at the first or second leaf.

Cherry House.—The completion of the stoning process will be indicated by the fruit commencing to colour, when, if it be desirable to accelerate the ripening, it may be accomplished by maintaining a higher temperature in the daytime; but the ventilation must be attended to, so as to ensure a free circulation, although in diminished quantity. From the time colouring commences discontinue syringing the trees, or the fruit cracks. Keep the surface of the border moist, and supply water and weak manure to trees in pots liberally.

FLOWER GARDEN.

Planting all kinds of evergreens should now be proceeded with, so as to bring this work to a completion before the young growths advance sufficiently to suffer injury. Although nothing can be better than late summer planting, it is doubtful if spring planting can be improved upon, as then root-action is encouraged by the daily increasing warmth and genial showers, which to newly planted

shrubs are beneficial. Considering the risk that attends the removal of large specimens it will be found more satisfactory to plant such as arc of medium size; but if for immediate effect large plants are to be moved the holes should be prepared of sufficient size and depth previously, so as to keep the trees out of the soil as short a time as possible. After planting give a good watering, and mulch with partially decayed leaves or spent manure, and secure them to stakes.

The hardy fernery should now be placed in order, removing the old fronds of Ferns. A top-dressing of fresh peat or loam or some thoroughly reduced leaf soil should be applied. In connection with the hardy fernery may be associated the rock garden, which must be rendered as neat as possible. Herbaceous plants may still be divided, and any wintered under protection should be planted out. Lobelias of the *L. fulgens* type have very brilliant flowers, and to do them well should be shifted on until the middle of May, and be then planted out where they can obtain plenty of moisture. Make another sowing of Sweet Peas and Mignonette, also the principal sowing of hardy annuals, which in clumps in the mixed border afford a pleasing variety. Asters, Stocks, and other half-hardy annuals may now be sown thinly under the protection of handlights or old frames in fine sifted leaf soil and loam, where the plants soon become more vigorous than those grown in heat.

PLANT HOUSES.

Greenhouse.—Cuttings of Salvias for winter flowering should now be inserted, selecting shoots of moderate strength, employing a compost of half loam and sand, and place the pots in moderate heat. If kept moist and shaded during bright weather the cuttings will soon form roots. When well rooted place them singly in 4-inch pots, and keep them in a little heat until fairly established, then remove them to a cold pit, repotting as they require it. Hydrangea cuttings taken now from suckers that spring from the base of plants being forced into flower, and inserted in small pots in a little heat, will quickly root, after which they can be placed in 4-inch pots, and finally into 6 or 7-inch, in which, with good management, they will flower well next season. The blue and white varieties of *Campanula pyramidalis* are fine for conservatory decoration, and seedlings or suckers of last year should be shifted into 8 and 10-inch pots. Seeds of these *Campanulas* now sown in a pan in a little heat will produce plants that if well attended to through the summer will flower next season. *Humea elegans* encouraged with liberal root space and kept free from aphides and red spider make elegant conservatory plants, contrasting well with anything. Balsam and Cockscomb seed should now be sown. Globe Amaranthus are also useful for conservatory decoration, and seed may be sown. Petunias of both double and single varieties should be repotted in good loam with leaf soil or well-decayed manure.

Epacris that have ceased flowering should now be cut back, and if the plants are as large as required, they may be cut to within a few inches of the point to which they were shortened last season. A little heat and moderate syringing will induce them to start freely.

Camellias should be encouraged to make free growth by a somewhat close and moist atmosphere, keeping them well supplied with water at the roots, and shading from powerful sun. Any plants of *Cytisus* that flowered early can be cut in and encouraged to make growth by syringing them, and, the growth completed early, they will flower early. Tuberous Begonias must not remain under stages or in other positions in which they have been wintered, but should be potted and placed in a light position to insure a sturdy habit. Similar remarks apply to Lilliums, which should have a top-dressing as they advance in growth. Kalosanthes now producing their flowers must receive sufficient water to keep their last year's foliage good.



BEEES IN CONFINEMENT.

CAN bees be wintered in a greenhouse with the doors of their hives open? Yes; we have kept weak hives in a greenhouse

during the winter and spring months. Many American apiarians winter their hives in dark cellars, but there the bees have no light and never leave their hives to fly about. At Sale I placed hives in a greenhouse with a span-roof, 60 feet long and 12 feet wide, and there let them fly as much as they liked. On the first day or two of their confinement many of the bees flew against the glass and became bewildered, and some were lost. The bees that flew against the glass became fatigued and rested on the sill of the greenhouse. Many of the bees on the sills gathered together in clusters, when they were carefully picked or swept up and carried to their hives. In a few days the bees became accustomed to their confinement, and flew backwards and forwards in the greenhouse without attempting to fly against the glass. In placing bees under glass a little care and attention are necessary for a few days. By placing a dish of broken honeycomb near the doors of the hives the bees smelt the honey on coming out, and many of them commenced to carry it into their hives. By removing the honey to a greater distance the bees soon become acquainted with their new home and its immediate surroundings. When bees are in a greenhouse they seldom leave their hives till the thermometer rises to about 50°. When the mercury ranges between 50° and 60° the bees find every flower, and delight to work on Chinese Primroses. The gardener at Worsley Hall ten or fifteen years ago placed a hive every season in his early Peach house, and valued the services of the bees there very much, for they never failed to set a good crop of fruit.

This subject of confining bees has cropped up in my mind by reading a short letter in an American paper, written by a bee-keeper of the name of Foster. "He says, 'As there have been various experiments in keeping bees in hothouses, and as this is the season to try it, possibly my experience will aid some in developing a system of management by which bees can be profitably manipulated during the winter months. I have succeeded in getting the bees to fly freely without darting against the glass, and also in having them readily to the hive. The room I used last winter is 8 feet wide by 12 feet long, and 7 feet high at the sides, and the ceiling is slanting with the roof. It is lathed and plastered, and has in the south slope of the roof and at one end a skylight. These are the only windows. I placed a barrel on a box in a corner under the window, and a hive of bees on the barrel so that the entrance of the hive would be near the window. A stove and the door were in the opposite end of the room. I spread a sheet over the window to keep the bees from darting against the glass. I kept the temperature at about 70°. The bees sallied out in great numbers and returned to their hive. My object was to cure dysentery, which I believe was caused by long confinement and suffocation. The bees voided freely, and I think the cure would have been permanent if I could have left them in the room long enough, but I was obliged to carry them back to make room for others; and as the weather was very severe the disease soon reappeared.'—A. PETTIGREW."

THE ANNUAL MEETING OF THE IRISH BEE-KEEPERS' ASSOCIATION.

THIS was held on the 13th inst. in the Members' Room of the Royal Dublin Society's Buildings, Ball's Bridge. The Rev. Geo. Proctor in the chair. There was a large attendance of members. After the report had been read and adopted, resolutions were passed re-electing the Marchioness of Waterford as President, and the members of the outgoing Committee. Resolutions were also passed approving of the charges fixed by the Committee for the hire of the bee tent, and in favour of an alteration of the rules, giving power to the present Committee to co-opt six members who should be resident in or near Dublin, and approving the recommendation of the Committee to have an additional Honorary Secretary.

A resolution, recommending the adoption as a standard a frame measuring 14 inches by 9 inches outside, having been put and negatived, a resolution approving of the frame adopted by the British Bee-keepers' Association was passed. A resolution in favour of a journal exclusively for bee-keepers, and independent of trade influences, and promising to support such a journal if brought out under proper management, having been passed, the proceedings closed with the usual vote of thanks.

BEEES DWINDLING.

I HAVE been much perplexed this spring with my bees dwindling, and I have used all my ingenuity to assist them out of their weakness, such as keeping them dry and warm and giving them plenty of food; still they dwindle at a fearful rate. I have been conjecturing very much, and I blame myself for one error—namely, I renovated them too soon—as soon as January; then I gave them what I considered better quilts, and one a new body box. But all this did not seem to improve them. One very

strong hive with a last year's queen lost over a quart of bees and the queen also. The queen not being dead, I took her from amongst the dead heap and placed her in a bellglass in heat. She was purging at a great rate. Before I lifted her the bees were pulling at her and treating cruelly by tearing her wings. When I placed her in the bellglass I put five bees in with her. One of them caught her by the wing and carried her all round the glass, so that I had to take the bees from her. I kept her about twenty-four hours in glass, when she seemed a little better. I then caged her on one of her own combs in the hive, but she died very soon. This was a very strong hive, with all their own honey well sealed since August, 1881.

I am very sad over all this, and also impotent. I am applied to for instructions almost every day, and almost all my pupils are most successful, and the "teacher" alone in difficulties is rather vexing. I should say that my bees are all in bar-frame hives, with double walls—no crown board, but a good felt quilt. I was encouraged the other day by reading again a letter of Mr. Raitt's in a late number, which said that one pint of bees in April would do all right for a good hive. Mine (three weak ones) have more than a pint, but what of all this when the mortality seems greater than the increase?—IMPOTENT.

[Dwindling is a trouble to be expected every spring. The enormous population of a previous autumn, especially in well-protected hives, may come through the winter with scarcely any loss, but they always fall away rapidly in early spring. My own hives are, at this date (22nd April), at their lowest as regards population—not one showing any apparent increase. But this is normal and causes no alarm. IMPOTENT'S is an abnormal case, and is mainly owing to his well-meant but untimely attentions. Bees unduly excited early in the year by transferring, feeding, or otherwise, invariably start brood-rearing as a result, and this oftentimes on an excessive scale. The vital energies of the adult bees, all old at this time, are too heavily taxed all of a sudden. They die off in consequence at so alarming a rate that in many cases the brood is left to perish by chill, and not unfrequently the first cold snap finishes the stock. This is the American trouble of spring dwindling, and is mainly a result of the suddenness with which the bees emerge from a cool dark cellar to a balmy spring atmosphere, or from a long and constant winter in the open air to a bright and genial spring.

But "IMPOTENT'S" case is not altogether to be accounted for thus. Plenty of food, with dwindling stocks, seems to have induced a good deal of "mixing up" of bees, if we may judge from finding a queen balled and bitten in her own hive. Perhaps even robbing has been going on briskly. Still further complications, such as "purging," seem to point either to unwholesome food or to the bees having been forcibly confined to their hive.

As a rule, the less bees are meddled with in winter and early spring the better they thrive. I have no such troubles, for I leave my bees in their winter packing and only feed in cases of absolute necessity until the increase of bees shows that the danger is past. Thus often May still finds my bees in winter packing. But some "teachers" are apt to diverge into new paths, thinking they can afford to be venturesome, while their pupils go softly and beat them at last. Thus, however, teachers learn, and no doubt "IMPOTENT" will be wiser next season.

If his bees are still dwindling, let him at once reduce their hive-space till they can cover all the combs left, and pack them as if winter were still in prospect. At the same time contract the doorway till only two or three bees can pass at a time, and avoid undue excitement by feeding or otherwise. The queenless bees must of course be united to another stock.—WILLIAM RAITT, *Blairgowrie*.]

BEE SHOW IN DUBLIN.

THE first bee Show of the season was held in conjunction with the Royal Dublin Society's cattle Show on April 11th, 12th, 13th, and 14th. Mr. Baldwin acted as lecturer and expert, and was listened to attentively by crowded audiences. On Wednesday His Excellency Earl Cowper, Lord Lieutenant of Ireland, visited the bee tent, and seemed much interested in Mr. Baldwin's lectures and explanations. There was a show of hives and bee furniture under the auspices of the Irish Bee-keepers' Association, when the following prizes were awarded:—For the best moveable comb hive, first prize (silver medal), Edmondson Bros., Dame Street, Dublin. For the best hive for cottagers, price not to exceed 10s. 6d., first prize (silver medal), Mr. Balching, Bromley; second prize (bronze medal), Mr. Wm. Lonsdale, Lurgan; third prize (certificate), Mr. J. Traynor, Tinahely.

EARLY SWARMING.—Mrs. Wain, writing from Walton-on-Thames, states that early swarming may be expected this year. A very strong warm was obtained on the 21st inst., and others were expected the

following day; but the weather suddenly changed to showery with wind. The supers (glass) have been on nearly a month, and are partly filled with comb.

COUNTY CORK BEE-KEEPERS' ASSOCIATION.—We are glad to learn of the recent establishment of the above Society, and that it has been decided to have an exhibition of bees, hives, apiarian appliances, and honey on July 6th and 7th, in connection with Co. Cork Agricultural Society. Mr. J. Crosbie Smith, Passage West, Cork, is the Honorary Secretary of the new Association, which we trust will be prosperous.

TRADE CATALOGUES RECEIVED.

G. Stevens, Putney.—*Catalogue of Plants*.
B. S. Williams, Upper Holloway.—*New and General Plant Catalogue (Illustrated)*.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (*J. T. C.*).—The "Cottage Gardeners' Dictionary" has not been revised, and the matter in the new edition is the same as in the old, but with the addition of a supplement including the plants introduced down to the year 1881. There is no more comprehensive work of the same kind published. (*A. J.*).—You do not sufficiently explain what you desire, but so far as we understand your note there is no work such you appear to be seeking published in either weekly or monthly parts.

Vines Unhealthy (*F. C.*).—It will be necessary for you to send us foliage to arrive in a fresh state, and also to state the nature of the soil, condition of the laterals, and general treatment pursued; we will then endeavour to aid you. The leaf sent in a letter arrived perfectly shrivelled.

Lemon Tree Scorched (*W. M.*).—There is little doubt that the injury to the leaves has been caused by the sun, and may be averted by clouding the glass with a mixture of whitening and skimmed milk, or by the use of the article advertised as summer cloud, used as directed on the packets.

Fancy Pansy (*A. M. B.*).—The bloom you have sent is not Mrs. Frampton nor do we know what it is. We compared it with Mr. Hooper's fine collection at South Kensington last Tuesday, and there was not one exactly like it. Mr. Hooper thinks it is a seedling. The bloom is of full average size, but not so large as many others, and is of good substance with clearly defined colours. It is very good, and would be excellent but for a slight roughness of the petals.

Guano in Vineries (*W. H.*).—The paths and borders, but not the hot-water pipes, may be sprinkled with a solution of half an ounce of guano to a gallon of water when the Grapes are as large as Peas, applying it on closing the house early in the afternoon. When the Grapes are swelling freely after stoning guano water may be used twice that strength with safety, but not daily on the border that contains the roots of the Vines.

Seedling Amaryllis (*E. A. M.*).—We think it very unlikely that your Amaryllis would receive any award from the Floral Committee of the Royal Horticultural Society, as we have seen many superior in form and richer in colour passed by the censors. It appears to be a rather dark variety of *A. aulica*.

Vine Buds Shrivelled (*H. F. W.*).—The specimen you sent arrived in a state of powder, so much dried had it become in transit by want of care in packing. You say nothing about the mode of planting, soil, temperature, or the treatment to which the Vines have been subjected. If we can have a fresh specimen with the particulars suggested we will readily give our attention to the subject, which is, and apparently not without reason, causing you trouble.

Tacsonia manicata (*J. T.*).—The flowers are not Lapagerias, but those of the fine scarlet Passion-flower above named, which are produced somewhat early, the plant usually blooming in June and throughout the summer. It is an evergreen climber, needing abundant watering in summer, and to be kept dry in winter, but not so as to cause the wood to shrivel or the leaves to fall prematurely. Cut out the old shoots early in spring and retain the young shoots, training them near the glass. Fibrous loam two parts, and one part each sandy peat and leaf soil, form a suitable compost. Cuttings of the young shoots when 3 or 4 inches long, in sand under a glass in a gentle hotbed, strike freely. It is a native of Peru and succeeds in a greenhouse.

Liquid Manure (*G. Bates*).—You evidently want a liquid manure of an extraordinary nature. Urine, soot, and sulphate of ammonia are all chiefly valuable on account of the nitrogen they yield, hence it were little use using all three. Indeed, what soot yields is just sulphate of ammonia. Neither is there any call for putting in both common salt and "soda ash," for both are soda salts. It is of no use putting lime in water believing that it will dissolve, for it will not unless newly slaked, and then only at the rate of some 4 lbs. to the ton of water. It will be far better if you sprinkle the salt, soot, and lime on

the ground and fork it in. The urine may be applied as a liquid manure, and will benefit "Cauliflowers, Cabbages, and Celery" if six times its own bulk of water is added thereto in wet weather, and more when dry. But are you sure your land wants either salt or lime? You say nothing about how you manure your land otherwise, hence we hardly know your wants. If you do not add ordinary manure, then superphosphate should be given in addition to what you name.

Lily of the Valley (*J. S.*).—The soil is perhaps exhausted in which the plants are grown. During fine weather in autumn, or early in spring before the crowns commence swelling, you may either dig up the whole bed and replant the crowns in small patches in fresh soil, or take out patches from the beds and plant them, placing manure in the spaces made by the removal of the plants; indeed the entire bed should be mulched with manure. There should be spaces of at least 6 inches from patch to patch in both the old bed and the new. If you require very fine crowns and flowers instead of a dense mass of Lilies, twice the space named should be afforded the patches. The ground between the plants should be thickly covered with manure, which should remain throughout the summer months. The plants are partial to a rather shady position.

Disbudding Young Vines (*Yorkshire Rector*).—Do not cut them back at all now, nor is it necessary to rub off the buds down to the soil; indeed we prefer to have some foliage there, shortening the growths when two or three leaves are formed, these assisting the swelling of the stem. Above the stage select a good growth for the leader, not necessarily at the extremity of the cane, where the wood may possibly not be ripe, but some inches lower, rubbing off all the growths above that chosen for the leader, and thinning out those below it, but only to prevent the foliage being overcrowded. You may allow them to grow from 6 to 9 inches apart this season; and next year, or when the growth is stronger and the foliage promising to be larger, make a further selection for forming permanent spurs at from 15 to 18 inches apart.

Marechal Niel Rose in Vinery (*Idem*).—With good soil and proper attention in watering the Rose will succeed well planted inside, but it would probably be more easily managed and more certain to flourish if planted the same as a Vine in the outside border. You can bring it through the wall at any point most convenient, but the stem must be protected with haybands during the winter in your cold district. Cut back the shoots rather closely to good buds on stout young wood, so as to ensure strong healthy growths.

Transplanting Conifers and Hollies (*E. Farmer*).—There is no better time than the present for transplanting Hollies, and Conifers may also be successfully removed now provided the work is well done and the specimens are properly attended to afterwards. We shall transplant some Conifers this week of various sizes up to 8 feet high, and shall expect every one of them to grow as well as those did that we removed at the same time last year. It is most important that the roots are not dried during removal. When planting one thorough watering is given—not a sprinkling but a heavy soaking, the surface being then covered with loose soil to prevent evaporation. This we find is sufficient for the roots, but if dry weather occurs the shrubs should be syringed frequently, and any large or choice specimen shaded. Had you supplied the particulars of your trees, or your object, our answer might have been more satisfactory. The "Journal of Forestry" is published at 14, Bartholomew Close, E.C.

Growing Mushrooms (*H. W. Needham*).—It is not possible to furnish the information you require in this column in a manner that will be of practical service to you. Numbers of gardeners are unacquainted with the details of growing Mushrooms out of doors, and some who have never had an opportunity of learning the process somewhat singularly arrive at the conclusion that the method referred to is chimerical. All the information you need will be given in due time in a series of articles that are in preparation on the subject. We have seen beds in private gardens quite as productive as those alluded to last week. The writer of the articles in question is intimately and practically acquainted with the method he will describe. He has not learned it from books for the best of all reasons, that there are no books published that give all the details—and these are most important—that will be advanced.

Eucharis amazonica not Flowering (*T. J. W.*).—There appear to be two varieties of this plant, one which flowers freely and the other which seldom produces blooms; possibly you may have the latter, but the following is the best treatment you can adopt under the circumstances. Turn the plants out of the pots, remove all the soil not occupied with roots, and repot in good fibrous yellow loam, keeping the bulbs about 2 inches beneath the surface. Syringe freely, only keeping the soil moist until the plants start into growth, then supply water abundantly, and when in free growth liquid manure will be beneficial. In potting good drainage must be provided, making the soil moderately firm. Shade from bright sun for a time, and if a bottom heat of 85° to 90° is at command it would facilitate the rooting. After growth has ceased place the plants in the coolest and driest part of the stove, but in a light position, and water only to prevent flagging. After subjecting them to this treatment for a couple of months remove them to a warmer position, and encourage growth by a moist atmosphere, copious supplies of water, and bottom heat.

Insects on Vines (*A. J. B.*).—These are not flies, but small bugs, and, as far as can be decided from the shrivelled specimens, they belong to the genus *Rhyparochromus*. These, and others related to them, are in the habit of resorting to the leaves and blossoms of fruit trees, and also to various other plants, but they seldom appear in numbers sufficient to do any serious damage. The transformations of these insects are imperfectly known at present. We do not think the *Pelargoniums* have attracted them into your house. Probably a small colony of them have settled somewhere near by one of those migrations not unusual in insect life. If there was reason to suspect that many of these bugs were lurking about the house the only effectual remedy would be fumigation. Sulphur would hardly be necessary, as they appear to be easily killed, and tobacco paper might answer the purpose.

Herbaceous Plants in Geometrically-arranged Flower Gardens (*W. B.*).—It is not necessary to publish your letter, as there is nothing in the critique to which you allude worthy of notice. No one with whom we are acquainted attaches any importance to a writer who so frequently shows his indebtedness to others for ideas by which, by a mode of treatment peculiar to himself, he profits. We remember once visiting a garden in which some fancifully formed beds on the lawn in front of the mansion were filled with a confused mixture of so called "bedding" and herbaceous plants. Many of the latter by want of stakes to support them completely covered several of the smaller plants which they were breaking and spoiling, the larger also hanging over and partially lying on the lawn. A more complete example of what we may term floral *deshabille* we never saw. The gardener explained the matter by saying his employers "like that sort of thing," but he was evidently ashamed of it. If we were to inform you to whose garden we are alluding your amusement would be probably greater than your surprise; but its condition certainly

afforded conclusive evidence of the soundness of your views on the appropriate employment of hardy and tender plants in gardens.

Conifers and Shrubs Injured (*W. F.*).—You direct our attention to the fact that the "needles of the *Pinus* sent are injured, but the shoot is not," and ask if we think "any such injury could have been caused by frost under any circumstances or in any season, seeing that the mature leaves are injured while the youngest part of the growth has escaped, and if frost severe enough to do damage to the leaves would not also have injured the soft end of the shoot?" Our reply to both the questions, as you have put them, must be in the affirmative. 1. The injury to the spray sent is similar (not identical) in appearance to injury by frost. 2. We have seen both evergreens and Conifers divested of their leaves by frost, and growths afterwards issue from the shoots. The injured Laurel leaves do not so closely resemble injury by frost, as portions of the leaves were perfectly green, while other portions of the same leaves were quite destroyed. We have seen something like this when frost has damaged the shrubs, but the effects of frost are not usually the same as in the leaves you have sent. When you say the injury to the *Pinus* occurred last July, and the injury to the Laurel in September, you have in our opinion conclusive evidence that the damage is not the result of frost. If you produce witnesses who can testify that the injury was done during the months stated, that will be conclusive that it was not the result of frost, unless it can be shown from authenticated meteorological records that severe frosts occurred in your district at the same time, and we do not think it possible that such rebutting evidence can be produced. There is this difference between injury from sulphurous vapour and injury by frost to Conifers—the effects of the former are apparent more or less at once, those of the latter not being clearly visible until the time growth should commence in the spring. It is noticeable, too, that the injury to the specimens you have sent is most marked on the outer sides of the leaves or needles where the noxious fumes have struck them, and you can produce the same effect by applying a little sulphuric acid to a branch. Dip a stick in oil of vitriol and draw it lightly up the foliage and observe the result.

Colouring Grapes (*E. F., Norfolk*).—We are glad you have read what has been published so attentively and profitably. The chief essentials for colouring Grapes are the following—1st, free root-action with good support; 2nd, stout, clean, well-developed foliage exposed to the light; 3rd, such a crop that the Vines can well sustain with strength in reserve for producing laterals; 4th, free yet judicious ventilation; 5, a moderate night temperature—that is to say, sufficient heat must be afforded for maintaining free yet steady growth, and no more, as we believe that very high night temperatures exhaust the Vines needlessly. Defective root-action, or, what amounts to the same thing, a too heavy crop, is the principal cause of Grapes not finishing well. Three years ago we gave advice to a gentleman relative to improving a house of what he considered a valuable variety of the Red Hamburgh Grape. We fear the treatment we suggested, that was well carried out by an able gardener, resulted in spoiling the cherished Red Hamburghs, for last year for the first time known to the owner—and the Vines are fifty years old—they produced fine black Grapes. The advice in this case was, however, given after inspecting the Vines, which is an enormous advantage in advising a method of treatment. However, the root of the subject consisted in increasing the root-action at the least tenfold, and probably fortyfold, and supplying suitable food. Grapes about colouring should have a thorough watering with liquid manure. A night temperature of 60° will be suitable for Hamburghs with free ventilation whenever the weather permits, the top ventilators being left open to a reasonable extent—an inch or two according to their number—the front ventilators being used during mild weather, but not at night at this period of the year, except very slightly under unusually favourable circumstances. Allow also a free extension of laterals, and maintain a genial but not a moist atmosphere, damping the house soon enough for the moisture to be dissipated before night. Muscats commencing ripening may have a minimum temperature between 65° and 70°, gradually rising to a maximum of 90° or 95° with abundance of air, which is essential to the berries assuming their fine amber colour and acquiring their peculiarly rich vinous flavour. Mulching must be kept moist so as to keep the roots near the surface, which is essential to the well-being of fruiting Vines. So far as we can gather from your letter, which is not clear on the subject, your chief danger is having a too heavy crop.

Names of Plants (*J. E.*).—In consequence of the flowers having been placed loosely in a large paper box without anything to keep them either steady or fresh, they arrived in such a bruised and withered state that we can only say the yellow one appears to be *Forsythia viridissima*, the other being quite beyond identification. (*Ryecroft*).—The flower simply enclosed in two fresh. *Aucuba* leaves arrived perfectly fresh, and is undoubtedly *Ribes aureum*. (*G. M. M.*).—Specimen much withered, probably *Amelanchier Botryapium*. (*Forgrove*).—*Doronicum caucasicum*. (*J. M.*).—The spray is not sufficient for identification, but we think your plant is a *Metrosideros*, the essentials for the culture of which are briefly given in the "Cottage Gardeners' Dictionary" to which you refer.

Bar-frame Hives (*Captain S.*).—The only form of hive that admits of having its combs emptied of honey without destroying them is that known as a bar-frame hive. The Woodbury hive you refer to is such a one. We cannot venture to quote prices, or even to give a particular description of any particular make, as the makers and styles are now so numerous. If you will read the six-penny manual "Modern Bee-keeping," published by Longmans, Green, & Co. for the British Bee-keepers' Association, you will find the particulars you want, also names of makers.

Bee Houses (*Acock's Green*).—Your question is a very natural one. You want to know whether a bee shed would be advantageous or otherwise for half a dozen of hives. Having both advantages and disadvantages, there exists a difference of opinion as to the value of bee houses. The great advantage of a bee house is that it protects the hive from rain throughout the year; in winter it helps to protect the bees from frost, in summer from the direct rays of the sun. If made to hold a considerable thickness of soft hay around the hives in winter it would, if so used, be a complete protection in the coldest of our winters to bees, and also a great assistance to them in early spring when breeding commences. But the inconvenience of bee houses is felt in the active months of summer by large and expert bee-keepers, who examine their hives often to see how things are moving inside, and who practise various processes of manipulation. In such examinations and processes a bee house is felt to be a great hindrance and inconvenience. If you erect a bee house remember to provide for summer ventilation. We have known the rays of the sun raise the heat of a bee house so high that the combs of the hives became soft, fell down, and smothered the bees.

Swarms and Honey (*E. Appleby*).—Though your hive is not a large one your description leads us to believe that it is in a prosperous state and well for-

ward, and that if the coming season be favourable you will get both honey and an increase of stock. In the meantime get two hives ready for swarms, 16 inches wide by 12 deep. If they are made square let them be 10 inches deep. A small bit of gnide comb is usually fixed in the centres of the crowns of swarm hives to induce the bees to build their combs from front to back. If you use straw hives put in some cross sticks. Bar-framers do not admit of cross sticks, or do not need them. As soon as the bees swarm naturally place the swarm in one of the hives. In about ten days later a second swarm may be sent off. There is no certainty about getting second swarms. If one comes hive it. Thus you will have two swarms and a mother hive. As your bees have plenty of pasture and Heather to follow, all the three hives may be heavy by the end of the season. The first swarm will be heaviest considerably. In a good season it will be too heavy for keeping. At the harvest drive the bees out of it and unite them to the other two, taking the honey from first swarm. In good seasons first swarms require enlargement by supering or eking. As the queen of your hive will be at least two years old at swarming time she should not be kept another year, and please to bear in mind that old queens always go with first swarms. If the weather be fine while the Heather is in flower all your hives will become heavy. When this happens some honey may be obtained from the mother hive, and the second swarm as well as the first.

COVENT GARDEN MARKET.—APRIL 26.

PRICES remain without alteration. A fair business doing.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	0	6	0	Lemons.....	per case	15	0	20	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	0	0	0	0
Cherries.....	per lb.	0	0	0	0	Nectarines.....	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	per 100	4	0	6	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	0	0	0	0
" Red....	½ sieve	0	0	0	0	Pears, kitchen ..	dozen	1	0	1	6
Figs.....	dozen	8	0	10	0	dessert.....	dozen	0	0	0	0
Filberts.....	per lb.	0	0	0	0	Pine Apples	per lb	1	6	2	0
Gooseberries....	per 100 lb.	45	0	60	0	Strawberries....	per lb.	4	0	8	0
Grapes.....	per lb	5	0	8	0	Walnuts.....	bushel	7	0	8	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms.....	punnet	1	0	1	6
Asparagus.....	bundle	3	0	7	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	per 100	1	3	1	6	Onions.....	bushel	3	6	0	0
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	1	3	1	6	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	2	6	3	6
Carrots.....	bunch	0	4	0	6	Kidney.....	bushel	3	0	3	0
Capsicums.....	per 100	1	6	2	0	Radishes.....	doz. bunches	1	0	0	6
Cauliflowers.....	dozen	1	0	3	6	Rhubarb.....	bundle	0	4	0	6
Celery.....	bundle	1	6	2	0	Salsafy.....	bundle	1	0	0	0
Coleworts.....	doz. bunches	2	0	4	0	Scorzonera.....	bundle	1	6	0	6
Cucumbers.....	each	0	4	0	6	Seakale.....	basket	1	0	1	6
Endive.....	dozen	1	0	2	0	Shallots.....	per lb.	0	3	0	0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3	0	6	6
Garlic.....	per lb.	0	6	0	0	Tomatoes.....	per lb.	1	0	2	6
Herbs.....	bunch	0	2	0	6	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	0



POULTRY AND PIGEON CHRONICLE.

INJURIOUS INSECTS.

(Continued from page 334.)

PEAS are subject to many casualties arising not only from atmospheric changes, but owing to the attacks of insects also. A mildew somewhat similar to that which affects Turnips and Rose leaves often renders the crop very precarious, for they then fall an easy prey to the insect tribes. If the season is cold and wet when early Peas are sown, they are frequently infested with millipedes and centipedes, which have the appearance of lengthened wireworms, and are commonly called hundred or thousand-legs. These eat into the softened seeds, and if they have sprouted few of them are able to struggle through the soil when thus weakened, and the winter or early-sown crops are consequently lost to the grower. The next enemy to both Peas and Beans are small beetles called weevils, which either destroy the plants as fast as they appear, or eat the leaves when they have expanded. Most farmers, and gardeners also, are very imperfectly acquainted with the habits of these insects, and have often accused the sparrows, rats, and mice, for which they have set traps, or strewed the land with lime, thinking the mischief was done by slugs and

snails. The injury caused by these insects being not understood, arises chiefly from the fact that they feed only at night time, and that during the day they hide themselves under the surface of the soil. In gardens these weevils may be prevented doing serious injury by dusting the young plants with soot, lime, and ashes; but on the home farm there is nothing we can do to save the crops that is not too expensive. Where the injury is extensive the land must be ploughed and re-seeded with other crops.

We must now allude to the tribes of insects which destroy or injure Peas and Beans just before or about the time of full growth—namely, aphides; these are of two kinds—the green dolphin, and the black dolphin, black fly, or collier. Like all the insects of this family, of which we have noted two, their appearance is frequently very sudden, and their increase so rapid that crops often suffer severely before they are discovered. Most writers upon the subject aver that these insects appear to any extent in dry summers only, and this is true as regards the black aphides which attack the Beans; but the green aphides, which so seriously injure the Peas, often attack the most flourishing crops very suddenly. These secrete themselves in the top branches of leaves and flower buds, and cannot be seen without opening the buds and leaves where they are concealed; but anyone who has had crops previously injured may see that something is wrong by the drooping heads of the stems. The attack of the green aphides is most serious, for nothing can be done to save the crop if the plants are attacked just as they are coming into bloom. Early sowing or early sorts partially escape sometimes, and we have known a sudden change of weather or thunderstorms stop their depredations immediately and completely; but there is nothing that the home farmer can do to stop the mischief. Still, the loss of crop may be frequently evaded. For instance, the late-sown Maple or Partridge Peas seldom suffer, as the green aphides rarely appear so late in the season as the flowering time of the late Peas.

The growth of Beans and Peas are, however, so alike in the usual farming rotations, it is requisite to consider as a matter of fact that the green aphides and the black aphides have seldom or never in our experience attacked the pulse crops in the same season. For instance, very dry weather which checks the growth of the Bean plants renders them liable to the attack of the black aphides, especially with an east wind; whereas the crops of Peas are mostly affected by the green aphides when the western wind prevails. Now these facts have induced us for many years to mix our crops by the drilling of Beans and Peas together, and we have found frequently that one crop will succeed while the other may succumb to the attack of the aphides. We have on certain occasions when cultivating Beans, particularly when the farm is near the seacoast, adopted the plan of growing Beans and roots either of Mangolds or Carrots alternately, for when the Beans have failed we have frequently grown fine crops of Mangolds or Carrots; besides which, the only treatment to save the Beans, that of cutting and carrying away the tops as soon as the insects attack the plants, can be more easily accomplished. We have also successfully grown winter Vetches mixed with the Beans. In fact there are numerous ways of evading the injury arising from the attacks of aphides in Peas and Beans, but none so successful as double or mixed cropping, because if judiciously carried out a profitable crop is assured.

Insects found in the farmer's granary and store houses are frequently injurious to corn in store, and also to the sacks in which it may be kept. The sack or white-shouldered woollen moth is one of the worst insects, for the larvæ will feed indiscriminately, not only upon any vegetable substances, but also upon woollen articles, or wool in store. The sacks are sure to be much injured if corn is stored in them for anything like twelve months; this, therefore, should induce the home farmer to store his corn and pulse in bins, or open heaps if room can be found. The moth we are now speaking of has long been recorded as a most mischievous insect in dwelling houses. The female deposits her eggs upon clothes, blankets, carpets, or any woollen articles and feathers. The home farmer should keep his sacks and sailcloths perfectly dry to avoid these insects, but to destroy them it is necessary to resort to airing in the sun, kiln-drying, and fumigating with sulphur. In mending or repairing sacks no worsted should be used instead of thread, nor should sacks from abroad be used, as foreigners often employ a combination of thread and worsted.

Nearly all our varieties of Cabbages, as well as Broccoli, Cauliflower, and Kohl Rabi, during the different stages of growth, suffer seriously at different periods of their growth by attacks of insects. When the seed leaves are formed the plants are eaten by the fly; as soon as the plants have formed rough leaves the wireworm eat the stems underground. Those plants which have escaped the wireworm find an enemy in the brown grub. These continue to

eat and destroy the stems until they become too hard through the formation of woody fibre. Although the plants are then near maturity they still have enemies to encounter, but these are principally palmer of various colour, the larvæ of butterflies and moths. These palmer in gardens may be picked off and destroyed before the plants or Cabbage heads are much injured, but upon the home farm it is almost impossible to remove the palmer by hand, as they continue to increase often for a month or more. Certain kinds hatch in succession, and when these insects are extremely numerous the crops are doomed, and at the best are but poor food for cattle after the palmer leave them, and we think that the heads should be cut and used; those most damaged may be given to store pigs and breeding sows, those which can be found unaffected may be given to dairy cows, or fed on the land by sheep, receiving also some undecorticated cotton cake, which is the surest preventive of diarrhæa in sheep whilst eating vegetable food like any of the Brassica tribe.

The wireworm in corn crops may be greatly kept under by the distribution of leaves of plants, slices of tubers such as Swedes, Mangolds, or Potatoes strewed over the fields, and the insects which may have secreted themselves hand-picked and destroyed. This is the only way to prevent serious injury, but still it is expensive; any applications on the surface are of little use beyond making those plants which are saved grow out of the way. It is often recommended to roll the land with heavy ring rollers; this will not destroy the insects, but only disturb them in the act of eating the corn plants. It has been stated with strong assurances of the fact, that rape cake drilled with corn kills the wireworms, in consequence of their eating it to repletion. We have, however, more faith in the fact that it makes the corn grow quickly out of the way of the insect. As our method of cultivating Potatoes to rid the land of wireworms cannot always be carried out, there is another remedy in the growing of Lent corn which we practised successfully before we grew Potatoes in field culture—namely, that instead of sowing Oats alone, or Barley alone, we sowed them in admixture; and although the wireworms were always at work, yet we found that they rarely destroyed both kinds of young plants, but we found sometimes the Oats and sometimes the Barley were eaten, but seldom both; one or the other on almost every occasion grew out of their way. In conclusion, we beg to say that as the injurious insects are so numerous, we propose to return to the subject on a future occasion.

WORK ON THE HOME FARM.

Horse Labour.—The showery weather lately prevailing has given the horses a holiday, but at the same time their work on the fallows has been lessened, for some of these have been rough and cloddy. When, however, the horses proceed to work the fallows fine it will be done with comparatively little labour now. It is important to consider that in the case of couch and weeds not being dry enough to burn it is best to cart it away so as not to hinder the work, for whether the couch is burnt or carted away it is desirable that the next work, whether of ploughing or scarifying, should not be hindered. All the meadows or parkland laid up for hay can be rolled with advantage, also the water meadows after being fed off by sheep should now be rolled when laid up for mowing. Mangold seed should be sown and Potatoes planted without further delay. The large Potatoes called the "White Elephant" are very productive, and in good land will yield a valuable crop; and as the tubers come very large and the acreable weight very heavy they are well adapted for cattle-feeding, and are specially well suited for the feeding of cows in a butter-making dairy. For Potatoes on the home farm portable manures like guano are better than farmyard manure, especially as the labour of carting is saved at the busy period; besides this, the tubers are not so subject to disease where artificial manures are used, as compared with yard or town dung. In manuring land for Mangolds or Swedes, especially on light land, we do not like to drill more than 2 cwt. per acre of guano mixed with 3 cwt. of bone superphosphate; but after being set out with the hand hoe, and just before the next horse-hoeing, we like to apply broadcast 1 cwt. of nitrate of soda mixed with 1 cwt. of fishery or common salt per acre. This will carry them through any dry period with success, and by which the crop is enabled to withstand the effect of drought upon light soils whether of gravel, sand, chalk, or limestone.

The catch crops, such as Trifolium, Rye, Italian Rye Grass, &c., are not only forward enough for sheep-feeding, but also for soiling cattle, dairy cows especially. Where cattle are fattened in the boxes in the summer months, especially in a season of general abundance, as the present time promises, we are very much in favour of soiling the bullocks in the boxes with either Clover or mixed grasses, also Trifolium and Lucerne. This has been our practice for many years, and we have found that an acre of field grass would yield double the quantity of beef as compared with the same produce made into hay, saving at the same time all risk of damage to the hay through adverse weather; nor is there any system of feeding we have seen or tried which will yield so much valuable manure as when cattle are fattened with green fodder. One thing is requisite—that the

animals should have a fair allowance of artificial food, one-half of which should consist of undecorticated cotton cake to counteract the laxative effect of green fodder, especially in wet weather. It is, however, desirable if the weather is wet, to let the grass remain in store twenty-four hours before using.

On the enclosed farms where hedges, banks, and ditches prevail, the grass and weeds on the borders will now be fit to cut up for feeding young cattle, breeding sows and store pigs, but especially is it adapted for dairy cows where the milk is sold, but not for butter-making. We know farmers who cut their borders twice in the year (May and July) for fodder, which not only contributes to the cleanliness of the margin and borders of fields, but also feeds cows in a milk-selling dairy with great advantage, the cows receiving 4 lbs. of cake daily; this system has proved very profitable in our management also for a number of years.

Hand Labour.—Both men and women in showery weather should be found work under cover if the wet weather prevails by screening ashes, earth, or chalk, the first-named being required to mix with drill manures, the second may be reserved in store until required for placing under cattle of all kinds and pigs in their pens, the last-named to be used for drilling with artificial manures where the land requires chalk. This application will insure root crops against any attack of fingers and toes in the fibres of the root crops by applying from 20 to 25 bushels per acre.

Live Stock.—Sheep and lambs are doing exceedingly well, for plenty prevails on all soils where a judicious provision has been made for them. The chalk-hill flocks where breeding ewes are kept are now feeding in the water meadows at daytime, retiring to the arable land at night, receiving a fold of Rye, Trifolium, or Italian Rye Grass, and the trough food given, such as the best Russian or American linseed cake for the lambs in advance of the ewes, but it should be remembered that this kind of food is very subject to waste. To prevent this we like to give the cake in a state as fine as meal, but mixed with cut Mangolds passed twice through the cutter. Still we never feed with cake only, but prefer to have a supply of cracked Beans or Maple Peas given once a day in the troughs. If lambs are only required for store purposes the allowance of undecorticated cotton cake of half a pound each per day will be sufficient to keep the animals in good growing condition; still there is at present a strong inducement to feed the wether lambs fat, as butchers' meat is extremely dear. Every kind of cattle food is forward, and where the land is dry both young cattle and dairy cows may soon lie out at night. On the home farm swine are always a matter of some importance, as we call them the scavengers of the farmyard. It is important to consider the kind of animals likely to pay best, and we find the large breeds of pigs are gaining the favour of farmers very fast indeed, we mean such as the large white Yorkshires and Berkshires; and we recommend for profit the crossing of these two breeds by mating the Berkshire sow with the Yorkshire boar, because the Berkshires are the best mothers, and bring most young ones at a litter. The benefit of the cross consists in more healthy stock than continuing one sort only, and also the fact and advantage of maintaining hardy constitutions, and yielding greater weight for age of more saleable meat at any given age.

POULTRY AND PIGEONS

PIGEON LOFTS IN SPRING.

WE have described many of our favourites, the Toy Pigeons; some German, the clever production by selection of the modern German fanciers; some English, or at least long naturalised in England; some oriental, when produced we do not know, but probably long ago. It is time to say something about their management at this season. To begin with, the fancier of Toys is never (or very rarely) obliged to provide himself with a flight of common Pigeons as nurses. This is a distinct gain, for the transference of squabs involves much trouble, not to mention that the flight of nurses of course fills up room, require attention, and if mixed with the choice birds mar the appearance of the collection. High-class Tumblers need less aristocratic Tumblers to play the part of foster-parents, for they cannot or will not duly feed their progeny. Pouters want the aid of rough Antwerps or other big birds; Runts, if they are to attain the marvellous weights now common in exhibition birds (and which, by the way, we believe are much more easily reached under hotter skies than ours) need a still more elaborate nursery. A once successful breeder of them told us that for each single young bird he had ready two pairs of feeders. Fancy a single pair of Runt squeakers with eight Pigeons continually pumping food into their crops! Our experience, on the other hand, with Toys is that nearly all of them feed and rear their young ones. We must make one exception—viz., some very short-billed Jacobins which we once had. Some Turbit fanciers, too, have told us that they

have found their fully-gulleted birds unable to feed their own produce, but we have never been troubled with this defect, though our Turbits have not been behindhand in this property of the race. As a rule we find those breeds which in form most resemble the original Rock Pigeons take the most care in making their nests, and are the most successful parents in rearing a numerous progeny. Archangels, Nuns, and Magpies will unaided sooner found a large stock than will Jacobins or Trumpeters. We merely mention this as a hint to any intending fancier who wishes soon to see a goodly flight about his Pigeoncote. There are many breeds, a single pair of which will in one season produce a dozen birds, and if they have been mated early in the year, some of their first young pairs will themselves be nesting in the late summer. For one who intends to set up Pigeons on a large scale there are beautiful books on Pigeons to be bought, with elaborate plans of houses and aviaries. The object of the present article is to give roughly some directions to those (many we believe they are) who would add a few Pigeons to their stock of poultry, or who, though they have not ground enough profitably to keep the latter, have at least a garden where an aviary is easily fixed, or perhaps can safely let some Pigeons fly at liberty. We therefore begin with the elements of Pigeon lore.

A pair bought together are almost always the founders of a stock. If a cock and hen are procured from different places they must be duly and gently introduced by being placed in separate cages near together for a few hours. Were they at once unceremoniously bundled into one cage the chances are they would fight, an aversion to each other would follow, and it would be difficult ever to pair them. After a few hours they will be seen to bow and make advances to each other; it is well to tantalise them, and still keep them a day or two apart. Then they may safely be put together; the match is made. When two or three pairs are to be kept in one loft or house it is well to have a wire cage wherein to confine them at first to a particular part of the loft, or a particular nesting box; we use the strong wire runs made for the front of chicken coops. One of these is placed with the open end, intended to fit to a coop, against the wall, and inside it a double breeding-box on an excellent plan given in Fulton's book of Pigeons. The Pigeons are put inside with food and water. They get used to their surroundings and soon feel at home. If there are others already in the house they get accustomed to the sight of them, while the wire prevents all frays, and the already established birds, which would probably attack a newly introduced couple and eject them from every nest, cannot do so. Within their cage they are secure, and probably at once begin to build a nest with some sticks and straws, which should be thrown down for them. In three or four days the novelty of their introduction wears off, the wire is removed, and they have quietly taken undisturbed possession of their appointed abode.

As we have said, some kinds of Pigeons will make themselves good nests, others will not. In the case of the latter a little help must be given, and some short straws and sticks put round the first egg. If the hen persists in laying it in some exposed place on the ground and not in a nest box we usually put two or three bricks round it as a rough protection; they keep the nest together and prevent the two eggs from getting separated, as otherwise is often the case. In about seventeen days from the laying of the second egg the squabs should be hatching. It is well to examine the nest, for it frequently happens, as in the hatching of chickens, that the large half of the eggshell from which a squab has emerged gets over the unhatched egg and causes the suffocation of the second squab in the shell. If a Pigeon is very tame it will allow itself to be gently raised up for an examination of the eggs. If it strikes violently with the wing and resents interference it must be resolutely lifted off. It is better to leave the hatching to chance than to have any scuffle with an irate bird. Hens are generally in this respect more manageable than cocks, therefore such an examination is best made towards night, for at that time the hen is almost invariably to be found on her nest; during the day the cock relieves her. The squabs once safely hatched must be left entirely to their parents. We are dealing, as we said, with varieties which scarcely ever fail to rear their own produce.

Pigeons which fly entirely at large can in a great measure supply themselves with their own requirements in the way of digestive substances; those which are confined must have these supplied. It is an evident fact that when they are feeding young ones the double strain on their digestive organs requires some special aid. At this time they should have some small seed, rape or millet, as well as the coarser corn and peas which is their common diet. In a state of nature, too, they now search for lime, salt, grit, and clay. If they are confined where no such digestives are attainable the parents will be found to become limp, weak, and out of condition, and the nestlings will become flabby and be ill fed. Of course their cravings must be artificially satisfied or success will not attend Pigeon-keeping. There is a preparation called saltcat, which is sometime pro-

curable from corn merchants, that has a peculiar fascination for Pigeons; caraway and aniseed are, we believe, among its ingredients. We have found a very simple compound answer the purpose—viz., clay, road grit, old mortar pounded, and rock salt. All should be well mixed, kneaded into balls, and baked. The Pigeons will constantly peck at them, and the condition of both feeders and fed will show the benefit.

When the nestlings are about three weeks old, sometimes even sooner, the hen will lay again. This is the reason why Pigeon nests are generally semi-detached, or, in other words, why breeding boxes are best made double, with two compartments approached from one entrance. The pair have no trouble about taking possession of an entirely separate house for their second family, and at the same time the first pair cannot nestle under the mother to the obvious detriment of her fresh-laid eggs, as assuredly they will do if no barrier divides them. All the while that the pair are sitting again, often up to the very day of the second hatching, the cock bird will continue to feed the elder young ones, and at first the hen will do the same. The provision of Nature is wonderful, by which even the cock bird suddenly ceases to give crude grain to the one pair, and begins to feed the newly hatched infants with the most perfectly digested milky food. Some parent Pigeons will not molest their elder progeny, others will drive them about cruelly as soon as younger ones demand their care. In this case it is a kindness, if possible, at once to remove the discarded of their parents to a second house, where they can live and feed in peace. We hope to follow out the subject in future numbers.—C.

BIRMINGHAM POULTRY SHOW.—The Committee of the above Show will meet on May 1st to revise the prize list, previous to which date the Secretary, Mr. Lythall, will be happy to receive any suggestions or offers of special prizes, cups, or guarantees as to entries in classes for new or neglected breeds. The Show is fixed for November 25th, and will continue for five days.

OUR LETTER BOX.

Poultry Yards (E. A. W.).—You will find a plan of a poultry yard in No. 79, December 29th, 1881. Plans also, with such other information as you need, will be found in our "Poultry Manual," price 6½d., post free from this office.

Management of Pigs (W. Courtman).—Your letter arrived too late for us to make the necessary inquiries and examination this week. The subject shall have our attention, and we will endeavour to publish in a future issue the information you need.

Trimming Hedges (H. Oxon).—It is not too late to trim Thorn hedges. We have seen them cut down when almost in full leaf, and young growths afterwards produced of the most satisfactory character.

Manure for Mangolds (Young Super).—You will find what you require on another page, under the heading of "Work on the Home Farm."

Rabbits (Old Subscriber).—If in compliance with your special request our reply is too brief that is your fault, not ours. The advice of your parents was wise, for boys are mischievous. Some fanciers adopt the plan to which you refer, others defer the removal for two or three days, others, again, do not interfere at all. Everything depends on circumstances. Tempt your doe with milky green food and fresh roots. You had better, perhaps, not disturb her in her present condition.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882.	April.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	16	29.795	44.5	39.0	E.	47.4	53.0	32.6	87.6	28.7	0.043
Mon.	17	29.446	49.7	48.4	S.E.	47.0	58.5	42.7	87.2	40.8	0.108
Tues.	18	29.682	47.9	43.3	N.W.	47.2	56.8	44.1	105.4	40.3	—
Wed.	19	30.023	51.7	50.0	S.	47.5	56.9	43.2	64.0	36.3	0.027
Thurs.	20	29.985	51.2	48.4	N.W.	48.0	67.0	49.4	115.3	45.5	—
Friday	21	30.258	55.2	50.3	S.W.	49.1	65.5	40.2	110.4	32.0	—
Satur.	22	29.701	54.0	50.0	S.E.	50.0	60.8	50.0	94.3	46.3	0.367
		29.842	51.0	47.1		48.0	59.5	43.2	94.9	38.7	0.545

REMARKS.

16th.—Bright early, afterwards fair, but dull and cold.

17th.—Cold and showery; wet evening.

18th.—Fine, cold, very bright intervals.

19th.—Fair, but overcast.

20th.—Fine, bright, and warm.

21st.—Fine and bright.

22nd.—Very wet morning, fine after 3 P.M.

A somewhat showery week, with temperature considerably above the average.
—G. J. SYMONS.



4th	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
5th	F	
6th	S	
7th	SUN	4TH SUNDAY AFTER EASTER.
8th	M	
9th	TU	Royal Horticultural Society, Fruit and Floral Committees at
10th	W	Floral Fête at Bath. [11 A.M. Promenade Show.

CUCUMBER-GROWING FOR MARKET.

IT may be safely asserted that the Cucumber growers in the neighbourhood of Liverpool equal, if they do not surpass, those of any other locality. Never before have I seen so many Cucumber houses as at Prescot. How long Cucumber-growing has been practised there I cannot ascertain, but, judging by the appearance of some of the houses, I should think for some years. One fact is evident, the trade has increased wonderfully during the past few years. Many fresh growers have started, and the produce is now sent all over the kingdom.

It is especially noteworthy that this Cucumber industry is not conducted by gardeners, but principally by mechanics. The chief trade of Prescot is watch-making, and those engaged in this, and carpenters, are the growers of Cucumbers. Some of these are very extensive growers; for instance, Mr. Whittaker, who is said to produce three tons weekly during the season. This appears a large quantity, but I do not think anyone would long doubt its accuracy if they once inspected his large house full of plants bearing fruit, and the many other houses devoted to their culture.

The houses all appear to be constructed on similar principles, and are span-roofed. Where several are built together the ridge-and-furrow system of roofing is adopted. Many of the houses are rudely constructed, but answer their purpose quite as well as more costly structures. Those with whom I have had opportunities of conversing on this subject contend that it would not pay to erect such houses as those generally found in private gardens. They would answer the purpose no better and last no longer—the hot and moist system of culture practised soon destroys the woodwork—but the difference in cost would be considerable. Many of the growers purchase the timber ready sawn, and construct their houses during the winter season, as well as fitting their pipes—in fact, do all that is necessary, with the exception, perhaps, of setting the boiler. An improved form of the old saddle boiler appears to be generally used. The houses have no front sashes, and there is no provision made for ventilating. The glass for glazing the roof is obtained ready cut, the edges of the squares are pushed up closely together, and more air is excluded than is the case with the ordinary lap system. The internal arrangements are simple. In many instances the ground is the floor, and on each side are narrow beds or borders about 2 feet wide, in which the Cucumbers are planted. One or more hot-water pipes are used in these beds for supplying bottom heat. The trellises upon which the Cucumbers are trained at one time

were formed with thin strips of wood, which were supported by stout wire hooks from the roof. This system is being discarded, and stiff wires employed in the place of the wood. Those houses built on the ridge-and-furrow principle have the furrow supported inside either on arches or brick pillars, which are employed instead of building a wall the whole length, undoubtedly for the sake of economy. The pillars are the only means of separating one house from the other.

Planting is done during the months of November and February, but by far the greater quantity during the latter month. Where extensively grown the young plants are raised in a separate house kept during the early season for the purpose. Several growers keep the young plants plunged in tan. The tan affords a gentle bottom heat, which is of great importance for early plants. The most extensive growers raise plants by the hundred and thousand, and they are placed about 2 feet apart in the beds, narrow ridges of soil being thoroughly warmed previous to planting time.

The soil generally employed appears to be good loam, in which the Cucumbers thrive remarkably well. Composts such as frequently recommended neither add to the lasting properties of the plants nor to the weight of produce. I have long since abandoned all such and employ loam, which, if moderately good, is all that is desired. Top-dressings are frequently applied during the season in order to keep the roots spreading near the surface. Each plant is secured to a small stake until they reach the wires. Stopping and thinning the shoots is but little practised, and the plants from the start are not stopped at least until they reach the top of the house. The side shoots are allowed to extend and are freely crossed, thus keeping the roof furnished with bearing growths and large healthy foliage.

As before intimated, the houses are not built so that air can be admitted to the plants. The doors are kept close during the whole season, except when it is necessary to pass in and out of the house. The young plants may flag a little for a day or two when first placed out, but they soon recover and grow vigorously. They are freely and frequently syringed, and abundance of moisture is used in the house as well as at the roots of the plants. I have been in the houses when the temperature has been considerably over 100° and the air almost saturated. During the hottest portion of the day it is impossible to remain in many minutes. Some may be inclined to ask whether the plants become scorched. They do not, for I have seen many houses with plants in full bearing and the roof entirely covered with foliage, but not a bud or scorched leaf could be found. These growers contend that if they once admitted air the plants would then become burned, and that opening the doors to pass in when required is ample to change the whole current of air inside the house. Further, they advance in favour of this system that they are never troubled with red spider or any other insect or disease: One large cultivator told me he had grown Cucumbers under both systems—that is, with ventilation and without, to see under which they succeeded the best, and he decided in favour of the latter. When air is admitted they find it next to an impossibility to keep red spider in check.

Cutting commences in about five or six weeks after planting, and the fruits are not thinned, but two and three are taken from most of the joints. The crop during the season is a heavy one, and the fruits as a rule are straight, and this no doubt is due to the rapidity with which they are grown.

This system of growing Cucumbers for market is a good one, and saves much labour in thinning, stopping, and ventilating. But the question arises, Will the plants last as long under this heavy cropping and non-ventilating system as those grown under the system more generally practised in private gardens? It is quite reasonable to suppose that the heavy crop of fruits and the rapidity with which they are produced must exhaust the plants sooner than if they were moderately cropped and judiciously thinned. But the objects of the two growers are so different that the systems can scarcely be considered from the same standpoint.

It may be observed that nearly all these growers have a variety of their own, which is very free, and in every respect admirably adapted for the purpose.—W. BARDNEY.

THE AURICULA EXHIBITION.

To myself, and I believe to a great many more, the Exhibition on Tuesday last at South Kensington was a most agreeable surprise, and those who were responsible for the Exhibition may be heartily congratulated on the result of their labours. It brought back to me, as one of the older race of florists, thoughts of the glories of olden days; but I am bound to say that it surpassed them in the number of plants exhibited, while the quality, owing to the introduction of many fine varieties since those days, was better. Several causes contributed to this result. The season had very much to do with it; the mild, excessively mild, winter had been favourable to the northern growers. Their plants are generally (where fire heat is not supplied) ten days or a fortnight later than those in the south, but it had not been so mild as to drive the flowers in the south out of bloom altogether; and although some of the earlier sorts had passed their best, yet the later ones were in good condition. Then the very wise alteration of the rules, which prevented growers who exhibited in twelves and sixes from exhibiting in the classes for fours and twos, brought together a number of exhibitors who but for this would not have, most likely, put in an appearance.

So full an account of the Exhibition has been given in last week's Journal that it would be needless to go over the same ground again, and I shall therefore confine myself to such critical remarks as the Show generally suggested to me. Mr. Horner, as usual, carried off the principal honours; but I think the most remarkable fact connected with his exhibits was that in the class for twelve, in which he obtained the first prize, some were his own seedlings. It were needless to say that his plants were well grown, and his flowers, although large, were not, as in the case of some others, coarse. So successful has he been in the rearing of seedlings, that he expects ere long to dispense with the named varieties altogether. Yet when the Judges picked out the plants for the premier prize some of these were chosen, and the contest lay between Prince of Greens and George Lightbody, ultimately the latter, hero of a hundred fights, carrying off the palm. And notwithstanding all that has been done of late years, here is a variety raised nearly a quarter of a century ago distancing all competitors!

A good deal of chaff has been used with reference to the practice of growing the Auricula in glazed pots; it was unscientific, and I know not what. Let me say, then, that the two next collections, those of Mr. Woodhead and Mr. Pohlman, are so grown; and although the very serious illness of the former gentleman has deprived his plants of much of his personal superintendence and care, they ran Mr. Horner very close, and would have done still more so, I have no doubt, but for this cause; in fact the northern growers carried off the greater number of the prizes, but I hope that this fact will be a sufficient answer to those who maintain that it is impossible to grow Auriculas well in glazed pots. Mr. Woodhead had also some very good seedlings, and if his health is restored (which I am sure all true florists will most earnestly desire) we may expect something from that quarter.

The general quality of the plants and blooms was, as far as my judgment goes, excellent. Some collections exhibited indeed very large and flabby foliage hanging over the sides of the pots, which were unsatisfactory to my old-fashioned notions of what an Auricula should be. Indeed, were I to have selected

what I considered the best grown plants I should have named those of Mr. Penson, who has in the course of four years managed to get together a most excellent and extensive collection. They were stubby thick-foliaged plants, standing up well, and with the blooms thrown well up over the foliage and able to stand alone, which many of the trusses exhibited would not do. Let those who are commencing to grow take an old fancier's word for it, that this is the type of plant to strive after, and that which will give the greatest satisfaction to the growers.

Naturally a great deal of interest was excited in the seedling competition, although it is a Tantalus-like sight, for none of those who admire them are likely to be able to possess them for some years to come; but it is a proof that with those who have time and inclination to hybridise scientifically and carefully a fine field of excitement and pleasure is open. There are two classes in which improvement, or at any rate additions, are required—Green-edges and White-edges. Grey-edges and Selfs are both well filled, and it would be difficult to suppose that flowers such as George Lightbody, Lancashire Hero, and Alexander Meiklejohn are to be excelled, while there are many others of great merit; but in Greens it is not so; the very best have faults. Colonel Taylor is angular, and shows too often a thinness on the paste, while Prince of Greens is weak in the tube. Booth's Freedom hardly anyone can grow. Traill's Anna is heavy, and Imperator angular and thin in paste. Whites are very restricted, and the newer varieties display a paleness on the tube which much detracts from their beauty. In Green-edges Mr. Horner led off with a bold-looking seedling, Agamemnon, tube orange, heavy ground, and pure green edge. It reminded me somewhat of Talisman, and, like it, is hardly refined enough. Mr. Douglas was second with Jumbo, more refined than his namesake. The petals are smooth, tube yellow, and paste dense. In Grey-edges Mr. Douglas was first with Mrs. Moore, a fine and round flower; and Mr. Horner second with Bluebell. It has what is not usual in this class, mealy foliage and a clear edge. Mr. Woodhead had an equal second, named after that good florist George Rudd, a very fine deep yellow tube, dark body colour, a fine truss, and altogether a refined flower; indeed, some questioned whether it ought not to have had a higher place. In White-edges Mr. Woodhead took first prize with a flower of which I wrote last year, as it struck me as being the best White-edge I had ever seen, its only defect being a little paleness on the tube; but in shape, edge, and in refinement generally it is first-rate. Mr. Horner's Rev. Godfrey Horner, which was second, had a better tube, but in other respects was not equal to the preceding. Mr. Pohlman, already well known as the raiser of Garibaldi and Helen Lancaster, exhibited a splendid Self called Brunette, deep maroon, almost black, very vigorous, and with a fine truss. Mr. Douglas's Duke of Albany is a fine flower, dark in colour, with white paste and a golden tube.

As to varieties, it is still remarkable how sorts which have been not only like George Lightbody twenty-four years, but others, such as Blackbird, Smiling Beauty, Lancashire Hero, of much older date, were in the very front of the battle. I do not think I have before seen Prince of Greens so good. Were it not for its weak eye it would be the finest Green-edge in cultivation; the truss is a little straggling. What an extraordinary proof of good culture and of a large stock was the fact that Mr. Penson took all the prizes in the Grey-edged class, eight in number, with seven George Lightbodies and one Alderman Brown. But the colour of the edge is so lovely, equalling Colonel Taylor at its best, that one overlooks this one defect. Acme (Read) was another flower that was very well shown, and is a most desirable flower in the scarce class of White-edges; it is better than Frank Simonite, which has the defect of so many of our newer flowers, weakness in the tube. Amongst Selfs Horner's Ringdove and Pohlman's Brunette are excellent smooth varieties, but of course it must be some time before the general mass of Auricula growers can speak of them from personal experience, although some of the newer varieties seem more ready to increase than the older sorts.

One thing was very much to be regretted—the unfavourable state of the weather, as the more that these lovely flowers are

seen the more will the earnestness with which those who grow them be appreciated, and the less we shall hear of adverse criticism, although we must not expect that anyone but a connoisseur will feel for them that intense admiration which they have ever excited amongst florists. I notice a discrepancy in the reports with regard to the single specimen Grey-edges in the Journal. They are all ascribed to Mr. Penson, but in some other papers Mr. Pohlman and Mr. Horner are also mentioned as prizetakers.—D., *Deal*.

[It would be a marvel if any of the reports were faultless. The plants were so crowded that there was not room for the prize cards, and some of these were no doubt displaced.]

MUSHROOMS FOR THE MILLION.

(Continued from page 318.)

INFORMATION WANTED.

"INFORMATION wanted" is the motto of the times; it is wanted on everything by which materials of whatever kind can be converted into money. That instruction is wanted, or needed, on a simple and profitable system of turning manure into money through the agency of Mushrooms, is apparent from the fact that even the great majority of gardeners are practically unacquainted with the method that will be described. This is no fault of theirs, for they cannot be expected to know what they have never been taught; and it were as unreasonable to expect them to become proficient at the first attempt as it would be to expect a carpenter to make a pianoforte, or a blacksmith to construct a locomotive, without some experience in the work. It is, however, fair to expect that those who have had no opportunities for practising the particular work under notice, nor seen it successfully carried out, will no longer assert that the system is impracticable in the face of results that have been adduced, and which it is not possible to explain away. Given the proper materials for growing Mushrooms in the open air, every intelligent cultivator who is under the impression that the work cannot be done, can, if he is earnestly desirous, do it, and by a little patient endeavour he may enjoy the singular pleasure of being surprised at his own success.

THE CHIEF ESSENTIALS FOR GROWING MUSHROOMS.

These are mainly five. 1, A supply of manure from horse stables; 2, good spawn; 3, equable and moderate temperature and moisture; 4, fertile soil; 5, intelligent supervision. The mere narration of the chief requisites is, however, not sufficient for the information of the inexperienced, and details founded on successful practice are indispensable. In order that the information now sought to be imparted may be of substantial use, the following remarks will be plain, the chief aim and object being to induce those having the means at their disposal, but who have never given thought to the subject, to become Mushroom-growers in order that they may add usefully to their resources, and give the populations of cities and towns what they do not now possess—a good supply at a moderate cost of this most agreeable product of the farm and the garden.

MANURE FOR MUSHROOM BEDS.

As above observed this must consist mainly, and it may consist entirely, of the manure from horse stables. Other matter can be added without injury to the beds, and occasionally an admixture of Oak and Beech leaves,

a slight sprinkling of tan, and even of salt and guano, have been found advantageous by some cultivators; but the three last-named ingredients must be used in a very homœopathic manner. Such tree leaves as those mentioned may, if needed, form one-third of the bulk when manure is scarce; indeed, excellent Mushrooms have been grown in beds half composed of Oak leaves, which, with manure, produce a steady and lasting heat, as the fibre they contain causes them to decay slowly. On the contrary, such large and soft leaves as Sycamore, Horse Chestnuts, and Planes are not suitable, nor are those of Elms and Poplars, as they speedily decay, and the heat which they generate quickly and violently is as suddenly dispersed, and extreme cold follows. Sudden transitions of temperature, especially of the soil, are more or less injurious to all plants, but by none is the injury perhaps so readily apparent as in Mushrooms; this subject, however, will be subsequently referred to. Tan can only be added with benefit when the fermentation of the manure is too slow, and even



Fig. 73.—Outdoor Mushroom Bed.

then a pound or two to a barrowload will usually be sufficient. Guano and salt in mixture have the same effect, but in a greater degree, in advancing fermentation, and an ounce to a barrowful of the material will be ample. When the manure is somewhat poor—that is, contains a greater bulk of straw than is desirable, this very slight sprinkling of salt and guano enriches the bed and benefits the Mushrooms, and it also adds greatly to the value of the old beds for manurial purposes. But the successful grower whose practice will be embodied in these notes uses none of these ingredients, except, perhaps, very occasionally a little tan. Leaves are not plentiful in London, and further, manure can be had by purchase from horses fed on hard food—that is, good corn and hay, as for obvious reasons it is not the custom to turn horses out to grass in the metropolis.

UNSUITABLE MANURE.

There is sufficient choice near large towns to refuse manure from those stables where the grooms are addicted to giving horses much medicine. Manure thus produced is fatal to Mushrooms, and is without doubt one cause of the failures which now and then occur in private gardens, and the origin of which cannot always be traced at the time. Neither is the manure good for the purpose in question from those stables in which Carrots are largely consumed. Thus it is conceivable,

indeed it is certain, that the gardener has not unfrequently had to bear the opprobrium of failure in the Mushroom house when the real cause of that failure was in the stable. This is one of those unfortunate cases where a man is not the keeper of his own reputation. Manure, therefore, must be had, wherever this is possible, only from those stables where the horses are fed chiefly or entirely on sound hard food, as Carrots, grass, and medicine given to the animals as a system mean blank Mushroom beds: and certainly no man should be accused of his inability to grow Mushrooms until he has failed to produce them by the use of manure of the proper kind. This being provided in sufficient quantity they can be grown if needed in the depth of winter in the middle of a field, but with a medium that is poisonous to them the most costly structure cannot avail to prevent barren beds. With manure of the character above recommended neither leaves, soil, nor any other ingredient is needed for mixing with it; but the condition as well as the nature of the material is highly important, and this phase of the subject demands special consideration.

PREPARING THE MANURE.

The foregoing remarks apply equally to manure for growing Mushrooms on a small scale in houses and for producing them in large quantities in the open air for market purposes. Those engaged in this latter work are few, far too few, in number, and they ought to increase in the environs of towns and in those country districts that are traversed by railways, and where stations are not far distant for receiving the produce for transit to those great centres of population where Mushrooms are ever in demand. Our remarks on preparing the manure will refer more particularly to that class of cultivators who almost exclusively must prepare the material in the open air. This proper condition of the manure is a matter of the greatest moment, and next to securing good spawn is the chief essential in the production of Mushrooms. Without good spawn profitable beds cannot be had, however suitable the manure may be; and on the other hand, even if the spawn is of the highest quality, unless the manure is of the right kind and in a proper state of decomposition for affording the requisite temperature and moisture, the mycelium cannot permeate the mass and the spawn will be wasted. It is not easy to determine whether inferior spawn or unsuitable manure has been the most fertile source of failures in Mushroom-growing. It is satisfactory, however, to know that good spawn is plentiful, and the preparation of the manure not difficult. It is, in fact, much more easy to do the work properly than to describe it in a manner that will be intelligible to those who have no practical knowledge on the subject. But even such individuals possess one advantage—they have nothing to unlearn; and on the same principle that a tailor is preferred to a jockey for conversion into a cavalry soldier, so we may hope there are many persons who have never seen a Mushroom bed made who will equal if not surpass as cultivators those who have had considerable experience in doing the work wrongly.

A WORD TO THE INEXPERIENCED.

For the encouragement of the uninitiated it may be stated that one of the most successful Mushroom growers in England is by trade a joiner, and did not

relinquish his calling until he had been for some years a journeyman. The question now arises—If a man who has been trained as an artisan has by intelligent industry and perseverance established his fame, and it is hoped is making his fortune, by Mushroom-growing, cannot hundreds of others, even on a comparatively small scale, make themselves proficient in the same work? Unquestionably they can if they will follow instructions intelligently and apply themselves with diligence towards acquiring competency in an occupation that is at once interesting and in a remarkable degree profitable.

In the sketch of a Mushroom ground previously given the beds are covered; in the figure on page 359 a portion of a bed is represented from which the crop is being gathered. It is not an ideal figure, but is "taken from life." So far from the engraving being exaggerated, strict accuracy compels the observation that on some other portions of the bed the crop was much heavier; indeed, the Mushrooms were crowded so densely as to admirably represent, in the struggle for development, the working of the celebrated Darwinian doctrine of the "Survival of the Fittest."—J. WRIGHT.

(To be continued.)

CENTROPOGON LUCYANUS.

THIS old-fashioned occupant of our stoves proves to be one of the most serviceable plants I am acquainted with, whether it be for the enlivenment of our houses during the dull winter months or for cutting purposes. It is of easy culture, is not much liable to be infested with insect pests; and a well-grown plant with stout branches, say a yard long, will during the season, which extends from December till late in March, push out a truss with a good footstalk of its curious, curved, funnel-shaped, bright red flowers at the axil of every leaf. Some of our plants were employed in the house and conservatory in December, and were thrown away early in March. Those kept in stove temperature for cutting purposes had first about 9 inches of the tips of branches cut, and later on the individual trusses as fast as they perfected down the full length, and from these plants we have just taken cuttings for next season's stock.

The whole of the plants grown for the past winter were struck late in April, the cuttings with and without heels striking readily in a moist, warm, and close frame. When struck they were gradually exposed to sunshine, then they were pinched back rather severely, and when starting afresh were placed singly into 3-inch pots, returned into heat, and shaded from bright sunshine. In most cases three shoots were secured at the first stopping, these being ample for our purpose; but where this number failed to start we stopped them a second time. Before becoming root-bound they were shifted into 8-inch pots, in which size we bloom them. For the cuttings the soil employed consisted of sifted loam and leaf mould in equal quantities, silver sand being freely added, the well-drained pots being surfaced with the latter. When potting a similar mixture is used, only less fine; and for the final shift we use two parts of roughly broken turfy loam to one of leaf soil, with a good addition of decomposed manure, well limed, silver sand, and broken crocks. The latter is thought necessary owing to the liberal shift being given, and this season charcoal will be substituted as being more certain to keep the soil sweet and porous. The pots used are clean and well drained, moss being placed over the crocks.

At no time were our plants heavily shaded, nor placed when growing in a lower temperature than that given to ordinary stove plants; on the contrary, they were encouraged to form strong well-ripened growth, this being lightly supported by, but not bundled up to a single stake to each plant. A stake to and of the same length of each shoot gives the plant a stiff appearance, whereas if the shoots are only tied about the centre the points slightly curve, and this insures a greater length of flower at one time. Some of the shoots were furnished with blooms open at once to a length of 2 feet, and very effective they proved when in a group of other decorative plants. Water varied with liquid manure is freely given when the plants are well established and growing strongly, and also when developing bloom; in fact at all times, except in the case of those disposed in a cooler conservatory tem-

perature, when much less is required. Fully matured blooms last well when cut and placed in water, but young sprays when cut are pretty certain to flag quickly.—W. IGGULDEN.

BARREN CHERRY TREES.

I SEND you some blooms of a barren Cherry tree which I have tried for several years in vain to render fertile, and have at last pronounced the case a hopeless one. If you look at the blooms through a magnifying glass I think you will agree with me that there is no pollen on them, and that they never have produced any. At one time there were several similar trees here, and I have no doubt they were propagated from the same stock. As we so often hear of barren Cherry trees, may not this state of things be more general than is suspected? I send blooms (in paper) from other trees which are fertile for comparison, and although they have been subjected to heavy rain and strong wind to-day there is no difficulty in detecting pollen on them without the aid of a glass. The barren one and the Kentish are standards, the others are from a north wall.—WM. TAYLOR, *Longleat*.

[The pistils of the barren flowers appear to be perfect, and though the anthers are devoid of pollen, that would not prevent fertilisation by pollen from neighbouring trees.]

KITCHEN GARDEN NOTES.

PEAS are often sown in rows amongst other crops, and there is generally a vacant piece of ground on each side of the row 2, 3, or 4 feet in width. It is thought that the Peas shade the other crops too much, and that owing to this they would fail if planted nearer the row than the distance named, which is doubtless the case with some things, but not with all. There are some useful vegetables, such as Spinach, Turnips, Lettuce, &c., which succeed better in hot dry weather in the shade than in the sun, and it would generally be found a good plan to have a row of such a foot or so from the Peas. If any of the seeds named are sown immediately the former are staked the crops will be ready for use as soon as the Peas are fit to gather, and space will be greatly economised. The best and most tender Turnips we ever had in a very hot summer were grown in this way, and I think the Peas were benefited by them too, as their leaves shaded the soil and kept it cool and moist, and these are points of the utmost advantage to them in hot dry weather.

In some gardens vegetable seed beds are the rule, in others they cannot be seen. At one time it was thought to indicate a neat and efficient workman if an Onion bed could be made up with edges as straight as an arrow and a surface as smooth as glass, but such work would be regarded by us as a waste of time and a loss of ground. Vegetable beds find no favour with us, and by degrees we have discontinued them. They took so long to make, and the paths between required so much ground, one row at least being generally given up to them in every four or five at least, while the crops were certainly in no way superior to those which can be had from the row-after-row system of cropping. This is the way we prefer above all others.

The early Potatoes we had in at Easter were grown in cutting boxes, and they succeeded very well in them. This plan is worth mentioning and recommending, chiefly owing to the gain of space secured by it and its advantage over others in various ways. The boxes are 2 feet by 14 inches, and 4 inches deep. In each one six sets were placed, and after the growth had advanced all the shoots except two to each set were removed. This was the means of rendering the tubers much larger than they otherwise would have been under a crowd of stems and leaves. The quality was better, and they were more numerous than we have been able to secure from pots or in frames so early. The boxes can be conveniently shifted about, and being square they can be placed very close and compactly together in a small space. We intend extending their culture in this way, and can advise others to give it a trial.

Kidney Beans are always welcome in the early spring months, and they are amongst the easiest grown of all choice vegetables. We have had many fairly good supplies, but never any to equal that of this spring and the present time. Osborn's Forcing is the variety grown, and they are all fruited in 8-inch pots. The pods are thickly crowded, and some plants on the back shelves of a Pine house have been bent down with the weight of the crop. The pots are quite shaded from the sun, and this is much to their advantage, as when the soil about the roots becomes dry the plants are checked, insects soon infest them, and the supply may be stopped. Fresh green leaves are essential to the continued success of the plants, and these we secure by potting the plants in rather light soil, and from the time they come into

flower, or a little before, until the last pods are gathered, they have water from the manure tank every alternate day.

Many new vegetables are introduced annually, but few appear to multiply so fast as Radishes. For two or three years past we have had several kinds sent as improvements, and this season we have more than ever; but Wood's Early Frame, the Red and White Turnip-rooted, and China Rose we still depend on for use in spring, summer, and winter.

Outdoor Mushroom culture has lately been well discussed, but I fear the open air beds are yet few. Personally I have never been able to obtain a satisfactory crop of Mushrooms whenever I felt inclined in the open air. Sometimes we have gathered a few from outside beds, but this may have been months after they were made up and spawned. Further, I have visited many gardens in Scotland, England, and Wales, and I have never been able to see an open-air Mushroom bed bearing what I would consider half a crop, or anything like the quantity seen in the Mushroom house. I have been told frequently that Mushrooms could easily be had in the open from January until December, with the temperature at 90° in the shade or down at zero, but my informants had never a good bed, or in fact any bed at all, to convince me or substantiate their own assertions. Another advocate of open-air culture who writes a weekly calendar frequently gives elaborate instructions about the "Mushroom house," and yet holds open-air culture to be the only good way! I am anxious to notice this matter, as I find many are inclined to think their gardeners are void of skill in growing Mushrooms in the open, when in reality they are blameless, and I am sure there is not one gardener in a thousand who would undertake to have a full crop of Mushrooms in six or eight weeks after making up a bed in the hottest or coldest part of the year. It may be admitted this is sometimes accomplished, but "one swallow does not make a summer," and happening to get one or two good crops of Mushrooms in the open air occasionally does not prove, I think, that a constant supply may be secured. If the whole thing is so easy why is it not more adopted? but in my opinion there are difficulties in the way which cannot always be overcome, and which makes their culture most uncertain.

Many tender vegetables are now growing, and the snails, which are always too plentiful, cause much loss and injury. Searching for them early in the morning is the best plan. Hoeing and earthing-up are two paying operations. An open surface is always good for the plants, and earthing-up, especially in windy situations, keeps them firm and protects them from many checks.—J. MUIR.

COVERING WALLS AND BUILDINGS.

THERE has always been, and I suppose always will be, a difference of opinion concerning covering buildings with Ivy. Some maintain that Ivy causes buildings to become damp; others are of the opinion that the best way to convert damp walls into dry ones is to plant Ivy against them. All will, I suppose, admit that some covering is necessary to improve the appearance of walls which are, generally speaking, devoid of ornament. In the garden walls are as a rule covered with fruit trees, but we cannot for many reasons plant fruit trees against every wall or house. Now to my mind nothing looks better on the dwelling house and out-buildings than a dense covering of Ivy. To secure this, it is necessary after the Ivy has become thoroughly established to cut it in as closely as possible every spring with a sharp pair of shears, taking care that all the old leaves are cut off, and clearing away any rubbish that may have accumulated there during the past season. The wall will look brown and bare for a short time, but we are amply rewarded by the bright, clean, glossy green appearance the young foliage presents afterwards. On buildings it is necessary to go over it again some time in the autumn, cutting the leaves away from the windows and clearing the gutters before the winter sets in. When this is properly done I believe the Ivy absorbs the moisture which would otherwise remain on and in the walls. The real cause of walls being damp when covered with Ivy is that it is not properly attended to. When allowed to grow unchecked Ivy quickly chokes up gutters and stack pipes, and what was intended for an ornament becomes a nuisance; and in cases where, from a dislike to seeing the walls look dingy for a few weeks at this time of year, the Ivy is not cut in sufficiently close, but some shoots and foliage are left, it is often detached by its own weight from the wall; then, while it prevents the walls from being dried by the sun and air, it is unable to absorb the moisture itself.

There are many other plants suitable for covering walls, such as Ampelopsis, Clematis, Roses, Vines, &c.; but all these, with the exception of Ampelopsis Veitchii, require much attention to keep them in order. Clematises and Roses, where they do well,

look very beautiful on the house, but they provide nothing to relieve the appearance of the bare walls during the dreariest months of the year. The same with the Ampelopsis. I do not know anything that gives less trouble or looks neater than *A. Veitchii*; but that unfortunately is deciduous, therefore does not answer the purpose of giving a winter as well as a summer covering to the wall.

I do not wish anyone to imagine that I would plant nothing but Ivy; on the contrary, that with nothing to relieve it would certainly not produce a very cheerful appearance. What I would do is this: Cover the wall with Ivy so as to form a sort of hack-ground; then at intervals plant such plants as the old Virginian Creeper, Clematis, Roses, Wistarias, or any other hardy flowering or ornamental-foliage plant. They could be trained about on the Ivy according to taste; the flowering plants would enliven the aspect during the summer and autumn months; and what would produce a more pleasing effect against the dense green background of Ivy in the autumn than the rich varied colours of the Virginian Creeper? Then as these subjects die off at the approach of winter, we have still a fine covering of rich dark green, which is proof against all weathers.

Where a ruin has to be covered the effect may be improved by planting a few *Cotoneasters*, and scattering a few seeds of Wall-flowers and *Antirrhinums* about in the crevices of the building.—CANTAB.

NOTES ON CURRENT SUBJECTS.

AQUILEGIA CHRYSANTHA.—As this beautiful plant behaves here in the way that "*D., Deal*," cannot understand, the best plan yet tried to have it in its best form is to raise a few plants from seed annually, for it assuredly dwindles after the third year. Happily it comes perfectly true from seed.

BUDS CHANGING IN CHARACTER DURING WINTER.—"IRISH RECTOR" propounds a poser. Is he sure he knows flower buds while dormant? If he is right, the only solution I can think of is that the temperature has been sufficient to keep his trees in at least a low state of activity, and that the young bark had been green enough to allow of its performing the function of leaves. Bark in a young state is furnished with stomates, which act, though less effectively, as they do in leaves. If this be not the solution of the conundrum somebody else will have to solve it.

MURIATE v. SULPHATE OF POTASH.—"B." does not think we are confined to the use of the sulphate of potash, and seems to prefer the more soluble chloride. What about the cost? and is the muriate really more available because soluble? Have plants not the power of dissolving what they want? Decidedly they have; how otherwise could plants take up tribasic phosphate? The following quotation from a pamphlet sold by B. K. Bliss of New York on the chemistry of the Potato we commend to all who can fully realise all that it means:—"The muriate of potash is open to the objection for use in Potatoes that it has a tendency to produce tubers of inferior quality, waxy and watery. It is recommended to use as a source of potash, when the formation of either starch or sugar is desired, either wood ashes or some grade of sulphate of potash as free as possible from any chloride salt."

AGRICULTURAL REPORTS.—Would "INQUIRER" be so kind as to inform me where the reports he quotes from can be had, and the price?

CORDON v. HORIZONTAL FRUIT TREES.—Well done, Mr. Luckhurst! What now, "JOHN BULL?"—SINGLE-HANDED.

STEPHANOTIS FLORIBUNDA.

A REMARKABLY handsome specimen of *Stephanotis* in an 11-inch pot is now in flower at Mrs. Mary Miller's, Bently House, near Bristol, under the care of Mr. Gibson. The plant covers the roof of an ordinary plant stove, half span, 22 feet long by 18 feet wide, and a fortnight ago a thousand fine trusses of bloom were counted on it. I was greatly astonished at the small size of the pot, the strength of the wood, and the floriferousness. To see such a sight is worth a long journey. This plant suggests the inquiry why *Stephanotis* blooms are expensive. If the trusses were worth 12s. per dozen, £50 worth could be cut from one plant in about a month, and Mr. Gibson is not without flowers on the same plant for more than three months out of the twelve. If Mr. Gibson would give his experience it would be worth market gardeners' consideration. I may say that there were also many other plants in different houses, and from those in 11-inch pots to those in small thumbs all were proportionally as floriferous as the large one.—M. E.

DIGGING AMONGST RASPBERRIES.—Raspberries are surface-rooting to a large extent, but still we find in many instances they are not

treated as such. The spade is too frequently used amongst them, and then people wonder why they do not flourish and bear well. To have Raspberries in the best possible condition they should never be dug amongst, but each year after they are pruned and tied a good dressing of manure should be given to remain on the surface. It is surprising how the roots grow into it, and after a season or two it is next to an impossibility to get a fork into the ground. In gardens where manure as a surface-dressing is objectionable a little soil might be spread over it. This is our method of treating Raspberries, and they grow strongly, bearing abundantly.—W. D.

THE FORK v. THE SPADE.

I HAVE frequently noticed of late writers in gardening journals advocating the use of the fork in preference to the spade for digging. Not very long ago, I believe in the *Journal*, a writer went so far as to say that the fork was so much superior to the spade that the latter should be put out of the garden altogether, yet no one has, so far as I have seen, thought fit to say a word in favour of our good old friend. However, numbers of amateurs read the *Journal*, and as it is on the simple points where they make the most unfortunate mistakes, and I think the simple directions are the most important, very few of us being so ambitious as to try growing prize Grapes before we have learnt the art of setting Potatoes right end up. As it is in the growing of a good crop of Potatoes that the spade plays the most important part, it is right that we should decide whether it is the right tool or not.

I am decidedly in favour of the spade, and will try and give my reasons as plainly as possible. I may state that, having tried both fork and spade, I find the latter incomparably the best both on pure sand and on a heavy marly soil. On the sand the gardener has more control of his work, is able to mix in the manure and level the beds in a more workmanlike manner, more especially in very dry weather, than with the fork. Again, on heavy soil, if the spade be properly handled it does its work better. If the soil is too wet for the spade it is in exactly the same condition for the fork. If the soil is naturally very wet drains and the addition of some porous material as a dressing are wanted, and not a change of implements.

The gardener, as a rule, who objects to the spade is he who thinks he hastens his work by lifting at each spit a clod of soil from 6 to 8 inches in thickness, tumbling it over and then cutting it into four or six pieces. This process I would not call digging, as it is not even good for the soil. Our heavy soil here after such working and the assistance of the wind and sun assumes the appearance of the refuse from a brick kiln. The gardener who wishes to get through his work quickly and well lifts at each spit a piece of soil varying from 1 to 2 inches thick, and this in the heaviest land, without the assistance of the foot. This piece of soil as he turns it over and slips off the spade receives a slight twitch from the under corner of the tool, which shatters it completely; in fact in a way altogether surpassing the clumsy work of him who lifts the large clod. Not only is the work lighter but the soil is benefited, the produce is increased, and the work has a better appearance. I would advise all amateurs, in conclusion, when digging-in manure not to be satisfied with throwing the top spit on it, but to really mix it with the soil at the bottom of the trench; they will find that the result will well repay the extra labour, and what is worth doing is worth doing well.—HORTUS. 4

WALLFLOWERS.

THAT these, the sweetest of spring flowers, should prove themselves to be a source of profit to those who grow them largely for market, and who make a speciality of them, cannot be wondered at, seeing that they are what the majority of people would call one of those good old-fashioned English flowers which never lose their popularity. It may be truly said that there is a charm and fragrance about them which is peculiarly their own, and to this must be attributed their being such great favourites with all classes of persons. Certain it is that they are highly prized and eagerly sought after by the humbler class of people in our large and populous towns. Notwithstanding that they are somewhat extensively grown by those whose business it is to supply the markets, how seldom it is that we see them grown on a large scale in any of our leading private establishments. There does not appear to be the slightest reason whatever why they should not be grown for the embellishment of flower gardens. When in flower they really make a very charming display, and invariably will be found to be at their best at a time when they would be greatly appreciated—viz., when families are down at their country seats at Easter. In many places it must be admitted winter and spring bedding is carried out on rather a grand scale, *Conifers*, *Aucubas*, *Berberis*, and many other plants being employed for that purpose

in abundance. Where this is the case it seems almost needless to say that there is no necessity to grow Wallflowers by the hundreds or thousands simply to have a display at Easter. But, on the other hand, how many gardens are there in which the flower beds are vacant from the time the summer occupants are removed until they are filled again late in the spring, and where winter or spring bedding is not attempted? Such gardens there can be no doubt greatly preponderate, and for these it is that this note is specially written, and to the owners or gardeners, as the case may be, I would say, Have your flower beds green all the winter and gay with flowers in the spring, and if it is too costly to have them filled with evergreen shrubs and Conifers by all means plant them with Wallflowers.

We grow and plant out annually about four thousand Wallflowers. What an indescribable pleasure it is to stroll round the beds and borders when the plants are in flower and the air laden with their sweet perfume. Yes! and what a treat they are to the bees, and how advantageous they are both to them and to us by helping forward, as it were, the young brood, and in giving us early swarms. Any lengthened remarks in your columns respecting the culture of Wallflowers would probably be thought by many to be entirely out of place, owing to their being one of those plants which, to use Mr. Iggulden's phrase, many affect to know "all about." There are, however, two or three points I will briefly refer to. Although the past winter has been an exceedingly mild one, and has killed few, if any, of the Wallflowers, in former winters they have suffered considerably. Much of this can certainly be obviated. Our losses in some of the late severe winters, when we have experienced as much as 30° and 32° of frost, have not amounted to more than about 10 per cent., and this we attribute wholly to not growing the plants in too rich a soil during the summer months. Our plan is briefly as follows:—Sow the seed about the middle of May in drills 9 inches apart and half an inch deep. If the weather is very dry at the time the beds are well watered and covered with garden mats until the seed germinates. The young plants are pricked out when large enough in borders in the kitchen garden 9 inches apart each way. No manure whatever is used; on the contrary, they are planted on ground previously occupied by some crop of an exhausting nature. Under such conditions the plants are of a very sturdy character. In these quarters they remain till the end of October, and are then transplanted to where we wish them to flower, and again little or no manure is given. Keep the ground free from weeds, and supply water when necessary through the summer.—ET CÆTERA.

PARK PLACE, STIRLING.

IN your report of the Royal Caledonian Horticultural Society's Show, which was held on the 5th and 6th inst. in Edinburgh, I observed that it was stated Mr. Watson gained the first prize for black Grapes. As some of your readers may be anxious to know who the Mr. Watson is that was so successful, I send you a short description of his garden. He is gardener to Miss Morrison, Park Place, Stirling, a single-handed place with one vinery about 20 feet long containing two canes of Muscats, from which fruit has been cut that has done good service at some of the autumn shows of the above Society, two canes of Lady Downe's, and the remaining one Black Hamburgh; a lean-to greenhouse, a stove, one side having to do service in growing Melons and Cucumbers, and a Peach house, all small houses. Such, then, are the resources of Mr. Watson; and the next time his name figures in the prize list of the Edinburgh Flower Show, would the officials of that Society allow his employer's name and address to appear in their reports to the various newspapers and periodicals? for according to one of their own rules every competitor has to give his full name and address, also that of their employers if any.—GILBERT McDUGALL.

PINGUICULA CAUDATA.

BY far the most attractive of the Butterworts at present in cultivation is the beautiful species *Pinguicula caudata*, which was first brought prominently before the notice of horticulturists at Kensington in April last year, when a certificate was awarded for it under the name of *P. Bakeriana*, which was subsequently found to be incorrect, as the plant had been previously named *P. caudata*. On March 28th of the present year Messrs. J. Veitch and Sons of Chelsea exhibited a plant under its true name at Kensington, and were awarded a similar testimonial of its merit.

At Kew also the plant has been grown during the past year, and its qualities have been shown to the best advantage, for during that period it has been constantly in flower, and at the present time one plant bears three handsome blooms. Referring to this specimen a correspondent writes—"On visiting Kew a few

days since I had the good fortune to see the lovely *Pinguicula caudata* in flower. I had previously heard much about it, but it cannot be overestimated, and not one word too much has been written on its good qualities. The plant in question is growing in the porch at the end of the Orchid house, and appears quite at home associated with *Sarracenias*, *Droseras*, *Darlingtonias*, and other species of *Pinguicula*. It is quite a giant compared with the other members of the genus, and a great contrast of colour in the flowers compared with the more modest tints of *P. grandiflora*, *P. vulgaris*, and *P. alpina*. When it becomes more generally known it cannot fail to be appreciated. Its dwarf free habit and easy cultivation are qualities worthy of consideration. I understand the entire stock of *P. caudata* with the exception of the plant at Kew is in the hands of Messrs. Veitch, and trust they will soon favour the horticultural world by distributing a plant that is eagerly sought after."

The woodcut (fig. 74) is a reduced representation of one of Messrs. Veitch's plants, but the flower is shown of nearly its full



Fig. 74.—*Pinguicula caudata*.

size. The leaves are portrayed in an undeveloped state, as when the plant is fully grown these are broadly elliptical, 2 inches or more in length, similar to others of the genus in appearance. The colour of the flower, a rich rosy crimson, is most striking, the warmth of tint being relieved by a white dash in the centre. Its cultural requirements are few; in a cool temperature like that provided for *Odontoglossums*, though it appears not to need so large supply of moisture in the air as those Orchids do, with a compost of peat or sphagnum, it can be grown satisfactorily and will flower well. The plant at Kew is in a small thumb pot placed in a larger one, the space between the two being filled with sphagnum kept constantly moist. As was mentioned on page 158, one accomplished propagator has succeeded in increasing the plants by means of the leaves, and if this is followed up we may expect that the plant will not long continue scarce.—L. C.

WASPS—ON WHICH SIDE IS THE FALLACY?

LIKE "C. T. H." I could not understand the remarks of "DUCK-WING" on this subject at page 260, and I have waited rather impatiently for some facts to prove his astounding theory, "That

if there are plenty of queens there will be no nests probably," feeling assured that if such a theory could stand the test of examination it would not apply to wasps alone: and I might begin to console myself that, as the Gooseberry fly was already abundant there would be no caterpillars, also if there were plenty of Carrot, Turnip, and Onion fly in the spring our roots would be secure through the summer. And possibly, as we know that the great laws of Nature correspond more or less in all her works, the rule laid down by "DUCKWING" would reach even beyond the animal kingdom, and we might flatter ourselves that when the germs of vegetable parasites were very numerous there would be little or no danger to be apprehended from them. As your correspondent remarks that a "note of any half dozen consecutive years would prove (his theory) to anyone who kept his eyes open," I append such a note, and your readers can judge for themselves. As for myself, I shall continue the fallacy and reiterate a former statement, "That every wasp appearing in spring is presumably a fertilised queen and capable of becoming a mother of ten thousand other wasps." Supposing a wet or a frosty season should destroy the wasps as well as the fruit we are not much the gainers."

With respect to "DUCKWING'S" other statement, that "if there were a nest for every queen that escaped in an abundant year there would be enough to leave nothing of his fruit but stones and stalks," I may remark that we who have fruit to save and flatter ourselves that we sometimes know how to do it, have not finished when we have destroyed all the queens which we find flying about in spring; and that in the year 1880, for instance, which was a remarkably pleasant one for the wasps in the neighbourhood of those who are of the same creed as "DUCKWING" we managed to save our crops by destroying the enemy, although it was a very hard task to perform, and visitors remarked on seeing our Gooseberries hanging without any covering at the end of September and even a month later, "Oh! you have had no wasps, our fruit was gone months ago." My friends in the neighbouring town of Warminster will be able to tell you that in the year named, the fruit being quite insufficient to supply the wasps with the necessities of existence, they attacked the shops of the grocers and butchers with considerable success.

The plan of destroying nests must remain for another paper; meanwhile I recommend all who have fruit to save to destroy every queen it is possible to catch, and not reckon on the weather helping them as it did in 1879 and last year:—

Year.	Queen Wasps paid for.	Nests paid for.
1874	1615	108
1875	6178	152
1876	408	169
1877	1350	109
1878	1183	88
1879	598	28
1880	1192	190
1881	3184	71

—WM. TAYLOR.

CHINESE PRIMULAS.

THESE have been brought to such a high state of excellence within the last few years, that it might be almost imagined nothing further need be desired. In the form of the flowers there is not much room for advancement, though possibly some strains may be improved in habit, and we may have many fresh tints or combinations of colour.

Though these plants are quite easy to grow, yet many cultivators fail in attaining the best results, and for the sake of those who may be ignorant of the chief points necessary to secure success I will describe as plainly and as fully as possible my mode of cultivation, which, after many years' experience, I have found most suitable.

It is too late in the season to say much as to the treatment required to grow strong plants for autumn flowering. I have not grown Primulas for this purpose for several years past, but it may be stated that the seed should be sown in February, and the plants so obtained kept growing in warm houses until the end of May, after which their treatment would be the same as for those we specially refer to in the following notes.

To obtain plants for flowering in winter and spring, in which seasons these Primulas are found most useful, seed is sown in May, or even as late as June, but I prefer May. I prefer an ordinary cutting box in which to raise the seedlings rather than pots, as an equable moisture can be preserved with much more certainty in the boxes than with pots. A compost of rather fine soil, moderately coarse sand, and finely broken Mushroom-bed refuse, in equal proportions, is used. Over the drainage of finely broken potsherds a thin layer of moss is placed, and the soil is pressed in rather

firmly. The seed is sown thinly, then pressed lightly with a board; a gentle but sufficient watering is given, a square of glass placed over the box, and on the glass a thick layer of moss to insure darkness. A structure where a temperature of 60° is assured is a good one in which to stand the box. In about a fortnight many of the seeds will germinate; the moss must then be removed and a piece of brown paper substituted. The glass may also be slightly raised until it can be dispensed with. Should the surface of the soil appear dry, take the box and dip it for a sufficient time in a tank of water. When the second rough leaf is forming the seedlings are removed from the box. Again, I prefer a cutting box to placing them singly in small pots. Under ordinary treatment much more rapid progress is made when grown thinly in boxes than when in pots. A similar compost may again be used.

A cold frame shaded from the sun is best to grow the plants in through the summer months. When well established after five or six weeks' growth in boxes, prick them off singly into pots 2½ or 3 inches in diameter. In lifting the plants employ a handfork to loosen the soil thoroughly, when, if the soil has been allowed to become moderately dry, the plants can be lifted with abundance of roots. I have grown and flowered good plants repeatedly in a compost such as recommended above, but at this potting and onwards one of three parts loam to one of Mushroom dung and a good dash of coarse sand added may be substituted. Press the soil in moderately firm and return the plants to the same position, keeping the frame close for a few days, afterwards admitting air freely, and in dull weather remove the lights.

In August shift the plants into 5-inch pots, making the drainage good. At this time keep the ball low enough in the pot to allow the base of the lower leaves to rest on the surface of the soil. This will keep the plants firm, and in due time roots will be emitted at the base of stem. If larger pots are to be used the plants may be again shifted in September, but I have grown quite as large plants as are of general use in pots 4 and 5 inches in diameter. These plants when at their best were 15 to 18 inches across, with two and three crowns from which the trusses of flowers are produced. About the third week of September place the plants in a pit where a temperature of 50° to 60° can be secured. We have an old pit in which our stock is placed during winter on a bed of coal ashes, and the plants are about 9 inches from the glass. With attention to the supply of water, with weak liquid manure occasionally when the plants are well established, and a temperature such as that recommended, these grow very fast. Damping does not cause any trouble if the plants are growing freely. The soil should never be allowed to become dry.

The stronger plants begin flowering about the time they are placed in winter quarters, and by February we generally have them in full beauty. They do not last well in rooms, but in a cut state the blooms are of great service. As a rule we employ them alone with their foliage. Instead of cutting indiscriminately, a few plants are set apart for that purpose, and the others kept for greenhouse decoration.

A little seed is generally saved from the best flowers. Those selected are planted out in May at the base of a south wall, and as the seed ripens it is gathered. I strongly recommend those who only require a few plants that they should obtain strong seedlings in June or July from tradesmen. A small number can thus be obtained cheaply.—B.



THE PELARGONIUM SOCIETY'S SCHEDULE for the Exhibition to be held on the 27th of June contains two entries, to which it appears attention may be directed with advantage. Two prizes, each of £5, are offered for the best hybrids of *Geranium pratense* or *G. sanguineum*, and of *Pelargonium oblongatum*. We have heard of a hybrid of *Geranium pratense*, and it would be a matter of considerable interest were the invitation of the schedule before us to prove the means of bringing it under critical inspection. The object of the Pelargonium Society in offering these prizes is obviously to encourage the raising of plants with blue and yellow flowers.

— ON Saturday last, the 29th ult., A GALE of great violence

prevailed throughout the metropolis and in the provinces generally, trees being in many places uprooted, and the fruit crops seriously damaged. In the London parks particular injury has been done to the trees, while in Kent it is said the orchards have suffered to a similar extent. Correspondents writing to us from many other districts record results of an equally unsatisfactory character. A letter from Sussex states the hurricane blew off the sea for twelve hours with great violence, and brought so much salt with it that all the young shoots of trees and shrubs are withered. The hedges are brown, and even the common Nettle has had its tops destroyed. One fruit-grower in Kent estimates his loss as exceeding £200, and it is feared that a great part of the injury to the flowers and young fruits cannot be yet determined.

— AT the NORTHAMPTON CHRYSANTHEMUM SHOW, to be held on November 22nd and 23rd, a silver cup value five guineas will be offered in the open class for twenty-four cut blooms, the other prizes in that class being two guineas and one guinea. One cup value three guineas is offered for six specimen plants, and for amateurs two cups, each valued at two guineas, constitute the first prizes for four plants and twelve cut blooms respectively.

— MR. H. S. JAMES of Farleigh Castle writes:—"I am pleased to see my old favourite, the TULIP, is gaining many admirers; indeed, there is no flower that can surpass it for early spring. I have had this season over ten thousand in bloom in twenty-two distinct varieties, and my employer intends greatly increasing the stock. I still prefer the single varieties for bedding, the double forms not being so effective, and they do not stand the wind and rain so well. I described my mode of culture in the *Journal of Horticulture* for February 27th, 1879, page 158, but I should like to hear how Tulips are grown in the neighbourhood of London, as I have not the privilege of visiting them. My employer who was recently in London and other visitors inform me that the Tulips here were more effective than those in Hyde Park." We are informed that Messrs. J. Carter & Co. of High Holborn have now a beautiful display of TULIPS AT PERRY HILL, Keyzers Kroon, Couleur Ponceau, Royal Standard, Fabiola, and Rose Gris de Lin, all being good varieties for bedding. One bed of the first-named variety edged with Couleur Ponceau is especially noticeable.

— A MOST able and exhaustive lecture on FRUIT-GROWING AND ITS PROSPECTS was delivered at Maidstone on the 27th ult. before a large meeting of the Farmers' Club. The lecturer alluded to the culture of fruit from the earliest times, and dwelt on the great and increasing demand for fruit now. He referred to the various systems of culture, giving selections for market purposes of different kinds of fruit, noting also the cost of trees, value of crops, the desirability of forming jam factories, inequality of railway charges, and other impediments affecting the disposal of the produce; in fact there is scarcely a phase or point in fruit culture that did not receive full attention, and the subject throughout was treated in the most practical manner. A discussion ensued, in which Mr. Killick and other fruit farmers took part, and an unanimous vote of thanks was accorded to Mr. Whitehead for his singularly entertaining and valuable lecture.

— THE PLYMOUTH HORTICULTURAL SOCIETY'S SUMMER SHOW will, we are informed, be held on August 15th and 16th.

— A CORRESPONDENT sends us the following melancholy account of FROSTS IN ITALY:—From Brescia, Piacenza, Legnajo, Gorgonzola, Como, and Padua reports have been received of the great damage done by the late frosts. In the province of Brescia almost all the plains at the foot of the mountains have been devastated, Vines and fruit trees were destroyed, and all hope of the silk harvest is abandoned in many parts. At Gorgonzola the Mulberry trees and Vines have suffered most. At Como, where the

mountains were covered with snow and the temperature was at freezing, the Clover and meadows have felt disastrous effects.

— REFERRING to "KIRBY'S" inquiry on page 342 respecting AN ACID TO DESTROY WEEDS, Mr. Edward Luckhurst writes as follows:—"Sulphuric acid, the oil of vitriol of commerce, is the most powerful of all acids at common temperatures, and mixed with water it is the best and cheapest agent for the destruction of weeds. Its affinity for water is the cause of its destructive action. I have used it regularly upon paths and roads for some years. It not only kills every weed, but also the seeds which lie upon the surface among the gravel, with the agreeable result of a lesser number of weeds every year. It is had from the chemical works in carboys containing 118 lbs., and costs 1*d.* per lb., or 15*s.* 8*d.* per carboy. This quantity will suffice for a considerable area, and would probably do all the paths of a small garden, for half a pint of the acid diluted with a gallon of water destroys strong weeds of two or three years' growth, and a third less acid to the same quantity of water is sufficiently powerful for small weeds. The water is first placed in a garden can with a fine rose, the acid measured and poured into it. No stirring or further mixing is requisite, but it is immediately poured over the weeds through the rose, care being taken to make the entire surface of the path wet in order to destroy the seeds. A gallon of water with the acid will do 9 square yards of path. This will enable anyone to make a clear computation of the quantity of acid required to do a given area. Care must be taken not to let the acid touch the hands, clothes, or boots."

— MESSRS. CASSELL, PETTER, & GALPIN have issued the first part of "CASSELL'S ILLUSTRATED BIBLE," which, like the other serials emanating from that firm, is a marvel of cheapness and excellence. It contains an admirable chromolithograph of "The Captive Maid," which is worth all the money charged for the part, and the text is thickly interspersed with woodcuts, which tend to make plain local scenery and eastern customs. The same house are also re-issuing the "ILLUSTRATED BOOK OF CANARIES AND CAGE BIRDS," with coloured plates, the first part of which is now before us. We have also part 7 of the re-issue of "THE ILLUSTRATED BOOK OF PIGEONS." Of the current works we have part 16 of "ILLUSTRATED BRITISH BALLADS," containing "The Nut-brown Maid," "On the Brink," "Oscar of Alva," and part of "The Battle of Otterburn." Part 21 of "PAXTON'S FLOWER GARDEN" contains plates of *Phyllocactus anguliger* and *Ceanothus dentatus*, the latter far too pale in colour. Part 39 of "FAMILIAR GARDEN FLOWERS" contains the *Cineraria* and the Pontic Azalea; and part 62 of "FAMILIAR WILD FLOWERS" has the Saw-wort and the Wood Sorrel.

— AT the NATIVE GUANO COMPANY'S SHOW, to be held at Aylesbury on October 19th, numerous prizes will be offered for farm and garden produce grown with native guano. In the farmers' section twenty classes are provided, Messrs. Sutton and Sons, Reading; J. Carter & Co., High Holborn; and C. L. Perry, Banbury, contributing respectively five guineas in money or plate, a silver cup of the same value, and two guineas for Man-golds and Swedes. Classes are also devoted to market gardeners, amateurs, and cottagers for Grapes, vegetables of various kinds, including Potatoes, Onions, Carrots, Parsnips, Turnips, Beet, Cauliflowers, and Celery.

— THE *American Cultivator* refers as follows to the TRADE IN APPLES:—"The past year has been decidedly unprofitable to dealers in Apples, the financial loss and depreciation of stock resulting from a number of causes combined. The season was regarded as an 'off year,' and in the early fall, when dealers were purchasing, high prices were paid in consequence of the anticipated short supply. The crop, however, was much larger

than was expected; the market soon became well stocked, and the holders of the fruit, finding that prices were falling off, were obliged either to store their goods or to sell at a loss. The warm weather of the late fall months, as well as during December, made it almost impossible to keep fruit in good condition, and many bushels were rendered worthless by decay. Large dealers have been compelled all winter to repack their goods from time to time. This practice is not generally found necessary until the 1st of March, when Apples have been kept all winter, but this year repacking has been kept up since the first of the season. The exports of Apples from Boston, and indeed from the whole country, has been unusually light as compared with other years, owing to the scarcity of strictly first-class fruit. Apples shipped to foreign parts have arrived in such poor condition that only small prices could be obtained, the shipper frequently losing money."

— THE same publication observes:—"Horticulturists generally take the view that TREE PLANTING has a tendency to increase the rainfall, while the reverse is the case in sections denuded of trees. The correctness of this position is illustrated from the fact that greater rainfalls have occurred in Utah during the past season than had occurred previously since the Mormons have held possession of that territory. During the past ten years large numbers of trees have been planted throughout the farming sections of the territory, and the agriculturists are now beginning to reap the reward of their perseverance and foresightedness in this regard. The subject of tree-planting is one that has attracted universal attention during the last decade, and its benefits are beginning to be appreciated."

— MESSRS. JAMES CARTER & CO. have sent us the PALERMO ARTICHOKE which is very handsome, the roundest and firmest we have ever seen, but the scales are so close together the water drains from them with difficulty, and when served at table they are too wet. The flavour, however, is good. They have also sent us specimens of the ITALIAN FENNEL OR FINOCHIO named "Dalmatian Celery-rooted Fennel." It is a robust form of the common Fennel with a fleshy dwarf stalk, which is used by the Italians as a salad in the same way as we do Celery, eating it with vinegar, oil, salt, and pepper. It is also boiled along with fowl, meat, or macaroni. Fenchio is seldom seen now in cultivation in this country.

FRUIT AND WOOD BUDS.

UNDER this heading, on page 329, an "IRISH RECTOR" introduces a subject in which I am much interested, and which I had intended to bring forward at a time when gardeners have more leisure to discuss anything bearing upon horticulture. However, your correspondent's experiences are instructive, and serve to convince me of the correctness of certain views I have recently formed. My knowledge of plant physiology, I am sorry to state, is very limited, and therefore shall not venture to account positively for any phenomenal occurrence, but will confine myself more to results, and further solicit information from those competent to offer it.

As to when the wood buds are converted into fruit buds is to me a moot point. At one time I thought the character of the buds was invariably determined in the summer and autumn alone, and nothing we could do would change them. For instance, I was under the impression that root-pruning performed, say, at the fall of the leaf, would not materially affect the fruiting capabilities of the tree the first season, but would have the desired effect the second fruiting season. However, my authority, a most trustworthy one I well knew, convinced me I was altogether wrong in my surmises, and that the very fact of root-pruning properly performed at the fall of the leaf would of a certainty result in the conversion of a considerable number of wood buds into fruit buds. Of this I have since had ocular proof, as at the present time (April 21st) I can point to two contiguous Pear trees—one experimented on blooming freely, the other, as usual, bare of blossom. Unfortunately the varieties are dissimilar and both unknown to me, consequently my experiment does not amount to a demonstration,

and I shall be glad to see the history in these pages of a most elaborate and conclusive experiment I have good reason for stating has been made.

Judging from the above results of root-pruning I might perhaps be justified in asserting the phenomenal flowering of "IRISH RECTOR'S" young Plums to be due to lifting rather than to the mild atmosphere of the orchard house in which they were placed after being potted. I do not, however, consider this lifting the only cause, as probably if they had been returned to the open air, and experienced an average winter, so many fruit buds would not have been developed as was the case in the more favourable atmosphere. My reason for favouring this theory is simply because I am under the impression our fruit trees of all kinds on the open walls, and more especially Pears, have flowered much more abundantly than the appearance of the buds in the winter gave promise for. I had scanned them closely, and was confident we should have anything but a good blossom; yet on the whole the Pears flowered more freely than last year, trees of Williams' Bon Chrétien being laden with blossom, while Peaches, Apricots, Plums, Cherries, and Figs have not bloomed so freely for years past. The individual flowers, too, were strong, healthy, and in most cases thinning the young fruit will be needed. A large Fig in an unheated house is fruiting remarkably well, some shoots having as many as ten healthy fruit. All this may be the result of the short period of tropical weather experienced in the summer, but I am inclined to think was due to both this and the extremely genial weather we were favoured with through the past winter and spring.—W. IGGULDEN.

CRINUM PEDUNCULATUM PACIFICUM.

MANY beautiful Crinums are now known, and there are some which merit a place wherever stove plants receive the attention of cultivators. The flowers are usually elegant in form, either pure white, tinted or striped with rose, and possess a most pleasing fragrance. They are not, however, restricted to the stove, for some thrive in a greenhouse temperature, and a few are quite hardy in the south of England; amongst the latter the well-known *C. capense* being the chief. In the two former groups of species, however, we have the most beautiful forms, such as *C. asiaticum*, *C. Kirki*, *C. Moorei*, *C. amabile*, and that represented in the woodcut (fig. 75, page 367)—viz., *C. pedunculatum pacificum*, now being sent out by Mr. W. Bull of Chelsea. This, as can be seen by the engraving, is a remarkably handsome form with very large heads of flowers, the divisions of which are pure white, narrow, and gracefully recurved.

C. pedunculatum has been long known, having been originally introduced towards the end of last century, and presumably that now specially referred to is a superior form of the older type. Mr. W. Bull thus describes it—"A noble species, known as the Wedding Lily, introduced from Lord Howe's Island, producing immense umbels of deliciously scented, pure white blossoms. The individual flowers are from 4 to 5 inches in diameter, and as many as from twenty to thirty are produced in each umbel. The plant is of bold habit, with lanceolate recurved leaves and cylindrical-shaped bulbs. The delightful fragrance of its large and handsome heads of chaste blossoms makes this plant a most desirable acquisition."

FERTILISERS—POTASH.

A CAREFUL comparison between what I have written and the remarks at page 325 will show that the views of "INQUIRER" and myself are identical, or very nearly so. Were it an agricultural question only it would be much more simple, for a great mass of facts exist which certainly indicate if they do not decisively point the way. Viewed from a horticultural standpoint there is no room for dogmatism at all, for the light that shines ever stronger and stronger on scientific agriculture has done no more than shed a few isolated rays on the question horticulturally. At the same time certain facts exist which may help to guide us with the help of reason. True, we can only reason analogically, for no experiments worthy the name have been made to let us know whether phosphoric acid or potash are most in demand by Vines, for instance; but we certainly know that they remove very much more potash from the soil than phosphoric acid. Whether Vines would continue to flourish for an indefinite period in soil showing a natural supply of available potash to the extent of, say, 0.5 per cent., with a locked-up supply present in the usual quantities in such a soil, or whether an annual supply would secure better results, is just a point that the horticultural world is, or ought to be, interested in knowing. There is every probability that the natural supply would be sufficient, and this

probability would amount to a certainty were the ashes of leaves and shoots returned. However, men who cannot afford to experiment, but who know that Vines want potash and that employers want Grapes, are justified in securing a plentiful supply and turning a probability into a certainty. This is our standpoint, and the question with us is hardly whether an ounce or a pound is wanted for a Vine border, but how that pound can be

most economically supplied. Details are at present hardly so much wanted as broad facts. Ask the first gardener what his Vines want out of a border; ask what Cabbages particularly want. He is not an ordinary one if he has even a vague notion. But when he gets to know that potash is wanted, and that the guano and bones he supplies so liberally contain potash in very much less proportion than Vines want it, he will probably next ask how



Fig. 75.—*CRINUM PEDUNCULATUM PACIFICUM*. (See page 366.)

he can best and most cheaply supply that want. Then, if you get him to understand that the use of the urine that he has seen wasted unmoved, or sprinklings of wood ashes, or manure prepared with sulphate of potash, would enable him to do with less guano, or even without it altogether for a time, and yet be perfectly certain that he yet supplies every want, you have made him a better gardener. I hardly aimed at more than this when

I sought to impress upon your readers the advantage of using potash; and, as was said before, there is a difference between garden crops and their wants, and farm crops and their wants.

As I pointed out in my last communication, some agricultural soils must have potash applied to secure fertility. This is admitted. Our best soils, however, probably contain available (and what cultivation and atmospheric influences continue to make

available) potash sufficient to enable us to go on raising the best crops without applying any potash. When farmyard manure is regularly employed in the usual way, almost all soils will yield full crops without potash being artificially applied; and when every drop of urine is also returned it is doubtful if any soil worth cultivating requires it added artificially. These are broad facts that have been ascertained. But scientific agriculture aims at enabling farmers to sell all the produce, to dispense with stock, and even to do without horses if that is to pay best. Under these circumstances the agriculturist wants to know whether he can do without manure as some have tried, or if he must purchase what it is he actually wants. Under such conditions, or conditions approaching such, land that contains 2 per cent. of potash will be, of course, much more valuable than that which may contain only 0.05 per cent, as some cultivated lands do. The farmer on the former soil may be sure that he wants only nitrogen and phosphate, while the farmer cultivating the latter will almost certainly find the employment of potash salts in addition a necessity, or at least an advantage.

It is doubtful if ever science will enable the farmer to grow crops profitably in very sandy soils without farmyard manures. Possibly the best thing he can do is to use such, and subsidise it with phosphates, nitrogen, and also potash salts. Sulphate of potash, as found in kainit, is possibly the cheapest form in which potash can be bought. From some cause its use, as pointed out by "INQUIRER," has not always been attended with the results looked for. Being very sparingly soluble in water, it has hitherto been considered to be not available in that form, but it is supposed to become converted in the soil into the carbonate, and to be then available. Certainly its effects are often more apparent years after its application than immediately, hence the unreliable nature of experiments with potash in this form. Professor Tanner says, "In this form (kainit) potash has been productive of most satisfactory results, but as a rule it has not realised the sanguine expectations which were so generally entertained. This in no way depreciates the value previously set upon a proper supply of potash, it rather indicates that we have in some degree failed to employ the kainit so as to secure the best results which the potash it contains is capable of producing."

In my last communication I pointed out how Mr. Cadle had, or supposed he had, solved the difficulty; and if his method secures the reaction named—and there seems no reason for doubting the evidence—it is reasonable to expect that when manure is so treated the effect must be beneficial when potash is deficient. Even supposing the potash to be abundantly present in the soil, were the ammonia—worth £80 a ton—saved it would be well worth the cultivator's trouble to employ the kainit; for, though with judicious management the ammonia of farmyard manure can all be saved, it is too often lost either in the air or drained away. The questions to be decided are—(1) is potash needed? and (2) how may it be most economically used? I have seen no plan so feasible as the sprinkling of manure heaps with kainit for a triple reason: It is cheap, it saves the ammonia, and furnishes potash and other salts.

In the majority of gardens the supply of food which plants find comes, practically, from the manure, for garden crops require such an amount that they would speedily exhaust the natural food in even the most favourable soils. At least no gardener, unless he possesses data not generally available, can be justified in trusting to the ordinary supply from the soil. Space does not permit at present, but we could easily produce figures to show that garden crops require more potash than phosphoric acid, and to prove that the manure usually supplied contains more phosphoric acid than potash. When this goes on for a length of time we are quite safe in asserting that benefit would accrue were more potash applied. In a very large number of cases this does not mean a recourse to the market for potash salts, but the use of such as are generally to hand though generally neglected. In thousands of cases, however, potash salts must alone supply the want, and our remarks were intended to help those so situated to make the most of their circumstances. We are quite aware of the technical difficulties that attend an investigation of the case, and aware of the bewildering contradictions that have occurred. Nevertheless, we may grope our way by the light we have until it grows in strength to enable us to see clearly. Meanwhile we very cordially welcome any remarks "INQUIRER" may make, and hope to learn therefrom. The writer is but a learner, who drops a word now and again by the way when he thinks it may spring up and bear fruit.

In some experiments conducted by the County of Cork Agricultural Society, it appears that 2 cwt. of kainit produced a crop of Champion Potatoes at the rate of 13 tons 9 cwt. per acre, or an increase of 9 tons per acre over the unmanured

portion, and even more than that produced by 30 tons of ordinary manure. As 30 tons of ordinary manure contain somewhere about 300 lbs. or more of available potash, and 2 cwt. of kainit less than 30 lbs., and that *not* in a very available form, it is not easy to understand how such results have come about. However, we produce the latest experiment that has come to our notice and the result as a nut for "INQUIRER" to crack.—SINGLE-HANDER.

P.S.—"INQUIRER" quotes the words of Dr. Voelcker to show that potash salts are sometimes hurtful. Are we to attribute such effects to the potash or the chloride of magnesia? We believe the latter and not the potash does the mischief.—S. H.

"SINGLE-HANDED" was good enough to finish his reply to my first letter on the subject of Fertilisers with these words:—"If the difficulties raised by 'INQUIRER' have not been fully explained to his satisfaction we shall be pleased to return to the subject. Nothing is of more importance, and a full discussion would be useful." Encouraged by these words, and trusting to his and your forbearance, I now ask permission to again occupy your valuable space with my misgivings concerning his recommendations as "to the general and abundant use" of potash with stableyard manure.

In my last letter, finding that "SINGLE-HANDED" looked upon Voelcker as a supporter of his views, I pointed out that the latter, in his written reports, did not appear on the whole to advocate this practice, or at all events that he preferred to withhold his decision until more knowledge was gained on the subject, but at the same time I am free to admit that both Liebig and Ville in their writings would seem to me to be on the side taken by "SINGLE-HANDED." Probably, however, their conclusions are based upon results observed with the comparatively more exhausted soils of the continent, whilst Voelcker's deductions are, to a large extent at least, drawn from experiences in this country. With reference to the second point, on which I must confess I am still unsatisfied with the reasoning of "SINGLE-HANDED," I wish to observe as follows:—"SINGLE-HANDED" states that sulphate of potash must become converted into carbonate of potash before the potash becomes available for plant nutrition; but my previous studies had led me, whether rightly or wrongly, to the supposition that the present doctrine was that potash in the free state or combined with an acid was abundantly fixed by the soil; and in any case when fixed by the soil was immediately available as an element of nutrition, always supposing that other equally necessary elements were present and ready to perform their parts. If this be correct the views of "SINGLE-HANDED" on the point must be inaccurate, for he states that a long period takes place before the potash sulphate is converted into carbonate and becomes available for nutrition. It would appear to follow, too, that it would be better to add carbonate of potash to manures than sulphate or chloride, which is not, I think, generally supposed to be the case. However, as Liebig remarks, "There is not to be found in chemistry a more wonderful phenomenon, one which more confounds human wisdom, than is presented by the soil of a garden or field." We may well be excused, therefore, if our views on these difficult matters are not as clear as they might be, and I hope I may be allowed to make this excuse if I have troubled "SINGLE-HANDED" unnecessarily.—INQUIRER.

WOOD FOR LABELS.

THERE is still a question upon the subject of pitch pine for labels, about which I should be glad—and others would be glad as well—to learn our Editor's experience. Last week a communication of mine was published, and with editorial opinion, of a sample label which I forwarded. This label was taken to be for some other use than to be stuck in the ground. The upper part of the label only was sent, and this I should have explained, as it was of the common form, pointed at one end for sticking in the ground. It was said of the white deal that "We have never found the wood of white deal decayed before the names were obliterated when the labels were *not* inserted in the ground." But it is for sticking in the ground that I have proposed labels of pitch pine, and for this purpose only. The question I would ask is, Whether white deal or pitch pine is considered best for this purpose?

If asked I should have said that the soft white deal would take up water and soon decay, perhaps falling on the ground, while the name is still easily read. This would always be a misfortune, and would result frequently in the loss of names. With the white deal there is the advantage of deeply impressed writing, and we seem to be clearly instructed that this wood is best when the label

is kept from the soil, as on a wall. But I am not yet sure that it is good for use as I have proposed to use pitch pine.

I believe my experience shows that the durability of paint depends very greatly on the material upon which it is laid. We have here a few slate labels upon which the paint still remains with the name readable after an exposure of about twenty years. On wood there would probably be no paint at all after that length of time. I have noticed that on wood the durability of paint greatly varies, and I have reasoned that, as on slate, paint would last a great length of time on wood of sufficient density and imperviousness. In the case of the labels about which I am concerned, I think it would be of little use to regard the preservation of the name by the impressed character of the writing, as they would cease to serve their purpose when not easily read at some little distance. Therefore we have to depend on whatever goes on the surface.

All the labels of this kind I have charred at the base, and a coat of varnish is laid over the writing. Each operation seems to improve the durability of the label in far greater proportion than the cost of time and material. This I have done for more than two years, and I now send a complete label of red deal that has been in use that length of time—probably the whole of three winters. The varnish appears still sound, and the paint and pencil are perhaps totally unaffected. The charred foot of the label is perfectly good. The labels (15 inches long and 2 inches broad) are cheap, the material for 100 labels costing about 3s. 3d. The entire cost does not exceed about 6s. 8d. per 100. They are also handy, but I fear that some of the composite labels recommended are not. I am about to try some, however, but according to an estimate I have received for wire, the kind figured in issue of April the 13th, on page 308, would be much more expensive. To suit my purpose the wire would cost, according to estimate, 1d. for each if cut ready for use. The best label if attainable, other things being equal, would be one that is self-contained. The most simple is always the best in practical use, though after all the question in a great measure is one of expense.

In writing on the subject of labels I believe the purpose and point of view should be clearly given, as there is considerable difference in the results to be attained. The label I am looking for is one of moderate initial cost, legibility at a distance, strength, durability, and to be written upon with pen or pencil. Slate labels, I believe, are very good, but the cost is too great at first, and they require to be written upon in oil colour with hair pencil, which alone condemns them in my case, so far as I see at present. Many gardeners require a label that can be executed by the gardeners during wet weather or at other convenient seasons.—R. IRWIN LYNCH.

[Without doubt the last condition named by our excellent correspondent is important. The form of labels is a question of fancy with some, and of adaptability to certain positions by others. Those who require a durable label on which the name can be conveniently read will prefer the one sent by "F. J.," and figured on the page above quoted. This label gardeners can make in wet weather. Mr. Lynch's label is excellent of its kind, and will, without doubt, last several years. We have not used pitch-pine labels nearly so large as this, and those that we have employed decayed, not in the ground, nor decidedly above it, but they broke off just at the surface of the soil practically as soon as those made of white deal did, neither kind being either charred or painted with the object of preserving them. Would not the two kinds of wood be equally durable if both were charred?]

MR. HIBBERD'S LECTURE ON THE AURICULA.

THE following is an abstract of Mr. Shirley Hibberd's lecture, delivered at South Kensington on April 25th, to which we referred last week:—

In this eventful history the endeavour to begin at the beginning is likely to be frustrated by the meagreness and vagueness of the facts. Many observant florists have speculated on the origin of the Auricula, and have scarcely as yet arrived at satisfactory conclusions. In the delightful discourse by the Rev. F. D. Horner in this place on the 19th of April last year several species of Primula were named as likely progenitors of this remarkable flower, but I must confess I have not been able to satisfy my mind in respect to more than two or three of them. Those that appear to have the largest claims are *Primula Auricula*, *P. hortensis*, and *P. ciliata*. Possibly *P. amœna* may have some claim, and it would be convenient to regard it so because of its purple colour. But although we thus obtain four names we have in reality only two species, for *hortensis* and *ciliata* are but varieties of *Auricula*, and *amœna* comes too near to the common Primrose to be classed with the ancestry of our exhibition favourite. Mr. Darwin in his "Forms of Flowers," page 43, declares on the authority of Kerner that "the garden Auriculas are descended from *P. pubescens* (Jacq.),

which is a hybrid between the true *P. Auricula* and *P. hirsuta*. This hybrid," he continues, "has now been propagated for about three hundred years, and produces when legitimately fertilised a large number of seeds." But in this supposed pedigree we have the making at the utmost of an Alpine Auricula; and in *Primula villosa*, which I take to be the same as *pubescens*, we seem often to have the Alpine Auricula ready made, as, for example, in the plant figured in the "Botanical Magazine," t. 14. The Hon. W. Herbert in "Horticultural Transactions," iv., 20, gives reasons for regarding *P. Auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* as varieties of the same species. One of his reasons is that he raised a powdered Auricula and a *P. helvetica* from the seed of *P. nivalis*. But a powdered Auricula is not enough for our purpose; we want an edged Auricula. However, the raising of an Auricula of any kind from the species named is a fact of great importance, and suggests a more Darwinian view of the case than the one Mr. Darwin himself adopted. It certainly takes us, on the basis of experiment, back to the variable *P. Auricula*, and for other blood we seem to search in vain. Therefore, if we are bound to begin with a plausible beginning, we must take the wild Auricula as the sole basis of this department of floriculture, and pronounce the current opinion to have many claims on our acceptance as at once philosophical and historical. The wild Auricula is very widely distributed on the Carpathians, the lower ranges of the Alps, the higher ranges of the Black Forest, and on the northern slopes of the Caucasian range. In places where a scattering of fertile soil on stony declivities favours its growth it is met with in thousands; it is, in fact, more abundant in certain localities than is the common Primrose in some of our own western valleys. The interest of the inquiry all turns upon the apparent impossibility of deriving from this humble flower of a pale yellow colour the variety and the exceeding beauty of the flowers that are cherished by the florists for their sharply defined edges, their rich body colours, their pure paste, and brilliant centres that are like perforated nuggets of the purest gold. But I shall ask you to believe that the flowers we find especial delight in to-day are the true descendants of *Primula Auricula*, without admixture of blood from any other source whatever. Our common Primrose is a sportive beauty that is now yellow, now white, and anon purple, crimson, and amethyst, and in form single, double, and hose-in-hose. And it happens, too, that the wild Auricula sports without man's aid into red and purple, and thus provides us with some of the colours ready made for working up into the glorious edged flowers that now afford us so much pleasure, mingled with surprise. But although the plant that ranges far and varies much, and is often so abundant as to pave with a solid floor of its own lovely herbage the meadowy levels and sunny slopes of the mountain ranges of central Europe, there is no record of the faintest hint of an edged flower having been discovered in any of the wild forms, and thus the Auricula of the florist comes before us as peculiarly and pre-eminently the production of the florist. He has discovered how to develop its capabilities of varying in colour, and more especially how to augment and redistribute the farina or meal which Nature has provided for the defence of the plant in the oftentimes trying circumstances of its wild life on the mountains. The richness and precision of the body colour, whatever it may be, has less interest from a scientific point of view than the distribution of the meal, which in the wild plant is only found sparingly on the leaves and in the centre of the flower, whereas in some of the florists' varieties the leaves are as white as wool, and the paste in the flower is as dense as the ice on a bride cake, though infinitely purer in quality.

This change, so marvellously distinct, and so full of fine floral character, has been accomplished in so short a space of time that the truth is hard to believe. The Auricula is literally a flower of yesterday, and there is nothing worth searching for in the old books to throw light on its history. The grower of Carnations and Tulips may find a feast prepared for him in the books that take us far back in the annals of floriculture; but although on the mountains the Auricula has been blooming plentifully since the third day of creation, it makes but little show on the classic heights of horticultural literature. We may assume it was not known at Antwerp or Leyden in the middle of the sixteenth century, for had it been it must have obtained the notice of Rembert Dodoens, who commenced publishing in 1552, and in none of his works has he mentioned it. Gerarde and Parkinson are necessarily quoted by writers on this subject, but they give us far less help than they have had credit for; however, one must excuse them if they do not describe a flower that in their day had no existence. Gerarde appears to have had two or three Auriculas of the class now known to us as Alpines, with yellow, red, and purple flowers. He indeed in the "Herbal" of 1597 describes, at page 640, eight sorts of mountain Cowslips or Bear's Ears, as they were then called, but three at least of the number are not Auriculas, and of the remaining five one is doubtful. The great John Parkinson, of blessed memory, publishing in the year 1629, describes twenty-one sorts of *Auricula ursi*, or "Beares-Ears." But criticism founded on knowledge will quickly reduce the twenty-one to a smaller number, and at the very best there is not an edged flower, and perhaps not a proper self, amongst them. Of the eight varieties figured by Parkinson, on page 237, two are not Auriculas, and the remaining four differ but little in their characters, and we really cannot say that the history of the flower begins there.

In Mr. Horner's lecture mention is made of the Flemish weavers who settled in Norwich, Ipswich, Rochdale, and Middleton about the year 1570, and who brought with them Tulips and Auriculas from

their cherished gardens of the Netherlands. But the Auriculas of that time did in no way represent the Auriculas of this time; for in 1570, and for many years thereafter, the edged Auricula was a thing unknown.

In the second edition of Philip Miller's renowned Dictionary, published in 1733, we are told that "to enumerate the diversities of this plant would be almost endless and impossible, for every year produces vast quantities of new flowers, differing in shape, size, or colour." The characters, as given by Miller, may be thus summed up: The flowers must be borne on a strong stem; they must be in a regular and close umbel; the neck of each flower should be short, and the face flat and not inclined to cup; the colours bright and well mixed; eye large, round, of a good white or yellow. In the sixth edition, published in 1771, these characters are repeated. I turn from Miller's Dictionary to the "Eden" of Dr. John Hill, a handsome folio, published 1757, and therein we hear of yellow and purple Auriculas, but not of edged flowers and not of named flowers of any kind whatever. The Rev. William Hanbury's "Body of Gardening," in two fine folio volumes, 1770, tells of varieties "almost infinite in number" of this "luscious flower," but there is no hint even here of a proper Auricula; we are still rioting amongst Alpines and border flowers, double and single, but the tone of the writer does suggest that in 1770 it had long since passed into the hands of the florists for weal or woe. We learn from Hanbury that the florists rejected the double flowers and made a broad distinction between the self-coloured and the variegated, and at that point Mr. Hanbury leaves us to our own conjectures.

Thus we began with the third day of creation, and we have nearly reached the close of the eighteenth century, and we have not heard of any such Auriculas as have brought us together to-day. It will be seen, however, that Hanbury affords a clue to the time of their first appearance, which was doubtless about the middle of the eighteenth century, and we may reasonably conclude that for some time after the flower acquired the characters for which it is now valued writers on horticulture were in some instances unaware of its existence, and in others were prejudiced against it. Indeed, Mr. Hanbury was evidently familiar with the characteristics of the Auricula "fancy," and seems to have set up his back at it because of his confessed partiality for double flowers.

We have, however, a somewhat remarkable proof of the comparative lateness of the formation and acceptance of edged flowers in a paper published in the *Florist* in the year 1849. This professes to be a copy of a manuscript dated 1732, and bears all the needful evidences of genuineness. In this document we have a table of properties, twelve in number, from which we gather that the pips should be round and flat, the body colour solid, flaked, or striped; the bottom circular and without powder, and the eye showing a full thrum. Whatever may be the exact meaning of the terms employed in this code—and we should probably have but little trouble to master it in every detail—it seems to demonstrate that whoever drew it up was a thorough florist, but had never seen, or at all events had never recognised as proper, an edged flower of the modern type.

However, Mr. John Slater, in the "Amateur Florist's Guide," published at Manchester some ten years since, gives a list of edged flowers that were in cultivation in 1776, some of which no doubt were known in 1750, which for present purposes I will assume to be the year in which the Auricula first acquired its proper form as a florists' flower. Mr. Slater has searched the records of the cultivators of Middleton and Rochdale and other of the ancient homes of floriculture, and he makes a distinct declaration at page 18 of his book that the oldest known varieties were Rule Arbiter, with a green edge, and Hortaine, with a white edge; and these, he says, can be traced as far back as 1757. Pott's Eclipse, a green edge, he traces to the year 1767. About the year 1785 several sorts that are now known were introduced, such as Grimes' Privateer, grey edge; Popplewell's Conqueror, white edge; Gorton's Champion, green edge; and Wrigley's Northern Hero, green edge. Thus, the negative evidence derived from our exploration of the old books agrees with the positive evidence derived from the modern books, and we may safely regard the Auricula as dating from 1750, and it is therefore as a florists' flower a quite modern achievement. The first table of properties appears to have been published by James Thompson, a florist of Newcastle, in the year 1757. Maddock published his table of properties in the "Florists' Directory" in the year 1792, and Emmer-ton improved thereon in his "Treatise on the Auricula," published in 1815. Hence in Martyn's edition of Miller, published in 1807, the edged flowers are recognised and their properties stated on the authority of Maddock, and agree pretty nearly with the properties required in the present day.

Thus we arrive at a distinct epoch in the history of the flower, and the early history is completed. I shall scarcely err in saying that it is at this time in high favour, well understood, and its quality justifies the century and a half of labour that has been bestowed upon it. We may hear of collections numbering four to five hundred varieties, but probably no one at the present time possesses or desires so many; for the annual exhibitions tend to the weeding-out of the inferior kinds and the maintenance of a high standard of merit. And this standard of merit, usually described as arbitrary, is in the main in strict accordance with the laws of Nature. The stout smooth pip, the pure colours, the rich bold thrum-eye, the ample healthy leafage, are several signs of vigour and power of reproduction, and claim a for-

ward place for the plant in the "struggle for life," which tends ever to the "survival of the fittest."



MUSHROOM BEDS.

WHERE it is desired to have a supply of Mushrooms in succession to the indoor produce, it will be necessary to make up beds without delay. On a dry day shake the smaller parts out of any crude stable litter at hand, rejecting the strawy portion only, and if the smaller parts prove too moist spread them out in the sun, and turn them once during the day until they become only moderately moist. Choose a dry sunny site for the bed, and unless the ground be so high as to preclude water flowing to and flooding the beds after heavy showers, a temporary base should be formed of faggots or brushwood and laid out evenly, and over the faggots a good layer of coarse litter previous to putting on the principal materials. The bed or beds should be mound-shaped, having a base of about 4 feet, and about 30 inches high in the centre when well trodden and beaten down. In a few days the heat will have risen, and when it does not exceed 90° in the centre of the bed, or 75° at a couple of inches beneath the surface, the spawn should be inserted, but if too hot this must be deferred until the heat falls to the temperature named. Insert pieces of spawn an inch or a couple of inches deep (or so as to admit of their being lightly covered with the material), and 9 inches apart every way, firming the material well about and over the spawn. As soon as the bed is spawned cover with dry hay or soft straw litter thinly, and double it in about a week's time. In a fortnight it will be readily ascertained whether the spawn has run or not, and if it has place a layer of fibrous loam 2 inches deep evenly over the bed and beat it firmly, smoothing it with the back of the spade so as to form an even unbroken surface, and then cover it with the hay or straw litter as before. In from six to eight weeks from the time of spawning the Mushrooms will appear, when it will be necessary to uncover the bed, and if dry supply water at a temperature of 75° to 90° through a fine rose. At the same time avoid saturating the bed, which not only destroys the Mushrooms appearing, but is fatal to the spreading of the mycelium; hence it is necessary to have at command a tarpaulin or other light waterproof material to place over the bed in case of heavy rains. It is necessary to occasionally change the covering, as when it becomes wet next the bed it has a tendency to cause the crop to be tainted and the mycelium to spread too much on the surface. A very light covering will suffice after the Mushrooms appear, as they are greatly improved in quality by exposure to light and air, a thin covering of hay or soft straw being all that is necessary to break the sun's rays and prevent the bed drying unduly.

FRUIT HOUSES.

Vines.—Late Grapes must now be encouraged to grow quickly. Syringe freely twice a day. Keep the evaporation troughs filled with liquid manure, employing fire heat as little as possible, and close the houses early in the afternoon on bright sunny days. As the growths advance disbud, tie out, and stop as soon as they have made sufficient wood to cover the trellis with good foliage. Maintain a day temperature of 85° to 90°, with a free circulation of dry air where Muscats are in flower, and allow the temperature to fall to 70° at night. Keep the points of the bunches near the glass, and set the pollen at liberty by gently shaking the Vines when the maximum temperature has been attained. Where early Grapes are largely grown thinning the berries must be commenced as soon as they are set. This operation is best performed in the morning and evening, and on dull days when the temperature is cool. Grapes that are swelling must have a liberal supply of heat and moisture until colouring commences, when a drier and more liberally ventilated atmosphere must be accorded. Early Grapes when ripe need little fire heat, and the temperature may fall to 60° at night. Where fermenting material has been used on outside borders, and has become cool and heavy, a portion should be removed,

but a sudden check must be avoided by leaving sufficient for a heavy mulching, upon which a little litter may be placed to give it a neat appearance. Vines in pots for next year's fruiting should be ready for shifting into their large pots, giving them generous treatment, and stop the points when the canes are 8 or 9 feet long.

Melons.—The fruits on the earliest plants are becoming very heavy, and those hanging beneath a trellis should be supported, for which purpose there is nothing better than tables of half-inch deal, 6 inches square, with a hole bored in each corner. Syringe the foliage and walls about 3.30 P.M., and damp the floors frequently in hot weather. Afford water or liquid manure to the roots about twice a week. When the fruit gives indications of ripening lessen the supply of water at the roots, and reduce the atmospheric moisture, ventilating constantly. Attend to former instructions regarding the application of water during the setting period and the fertilisation of the flowers, being careful not to allow one or two fruits on each plant to take the lead of the rest. Promptly rub fresh-slaked lime into any part of the stems attacked by canker. Regulate the growth of young plants, removing at least every alternate lateral. Plants with fruit swelling in pits and frames should be well earthed up, the laterals being closely pinched, and where too crowded thinned, placing a piece of slate beneath the fruits raised on small flower pots. Maintain the heat at 65° to 70° at night, and 75° to 85° or 90° by day, and employ a covering on the lights on cold nights. Sow seed for succession.

FLOWER GARDEN.

Mowing should not be neglected now if it can be avoided, as a well-kept lawn is of great importance in any garden. Walks should be kept clear of weeds, being swept as occasion requires, and after rain be well rolled down. Any walks that are showing a discoloured surface, or that contain too many small weeds to be removed by hand, may with advantage be broken up with a hoe to the depth of an inch or two, and have the surface stirred occasionally during dry weather. This will effectually destroy any moss or weeds, and has a very cleansing and brightening effect on the gravel. After being well exposed to the sun and air for a time carefully rake it, and take advantage of rain to roll it down again. Coarse weeds on lawns, such as Daisies and Plantains, should be removed; the most expeditious way is to grub them up with a spade-like tool. Any disfigurement to the turf may be rectified by a slight dressing of fine soil rubbed in with the back of a rake, and some fine grass seed mixture sown, and then well rolled.

Roses will now require careful attention to prevent the Rose maggot destroying the flower buds. The bushes should be examined, and any leaf that from its curled appearance is found to contain one of these destructive pests should be squeezed between the thumb and finger. The cold weather has greatly retarded the growth, and insect pests are almost certain to prove troublesome. Green aphides should be destroyed upon their first appearance by dipping shoots of sufficient length in tobacco water or syringing them with it.

The great business of the past few weeks has been propagating all kinds of plants to be used for the summer display, and glass structures in most places are now full of such plants. It would be necessary to transfer most of these from the warm atmosphere of houses to cold pits or frames, and other temporary places, in order to gradually harden them. The hardier kinds may now with safety be placed under walls or other sheltered places where they can receive temporary shelter, so as to make room for Coleuses, Iresines, Alternantheras, and other tender plants that will require protection for some time longer.

Annuals of all kinds need timely thinning. Sweet Peas, Tropæolums, Convolvulus, and Canary Creeper require sticks as supports by the time they are 6 inches high. Dust in the evening or early morning with quicklime, soot, or dry wood ashes where slugs are troublesome.

PLANT HOUSES.

Stove.—Cuttings of Crotons 8 to 10 inches long inserted singly in small pots will strike freely without losing their leaves if kept close and warm until they have plenty of roots, and afterwards encouraged, they make useful decorative plants. Aralias may be treated similarly. The stems of the Aralias lower down, if not too hard, can be made

into cuttings with a couple of eyes each, and buds on the harder parts of the stems will start, and when the shoots are a few inches long these can be taken with a heel and inserted in sand in small pots. Cupania filicifolia and Terminalia elegans are beautiful plants for decoration, requiring the same treatment as Aralias. Asparagus decumbens is fine for decoration and cutting, and the lovely A. plumosus should be grown by everyone with a stove. The bright and bold-coloured foliage of Acalyphas render them fine for decoration, cuttings of which now struck and grown on make useful plants in a few months. Pandanus Veitchii is useful for table decoration. Suckers removed and grown near the glass soon become neat plants. Dracænas are particularly useful for table and other decorative purposes. Remove the tops of any plants that have become too tall, inserting them in 4 or 5-inch pots, and if kept close, moist, warm, and shaded will soon root and quickly form fine plants. The harder parts of the stem cut into lengths of about an inch and inserted in pots or pans will start into growth, and when rooted they may be potted singly. Sonerila margaritacea with white mottled leaves is one of the finest dwarf decorative plants, striking freely from cuttings, doing well in fibrous peat with an admixture of sand and a few small crocks. It cannot endure drought nor the direct rays of the sun. Vincas flower when other occupants of the stove are rather dull, and for this reason are very useful. Plants now growing freely and showing flower should have the points of the shoots removed to cause them to form bushy plants.

Cuttings of winter-flowering plants should be inserted without delay. Some of the most useful are Centropogons, Thyrsacanthus, Eranthemums, Conocliniums, Centradenias, Sericographis, Scutellarias, Plumbago, and Aphelandras. All strike freely. Young growths of all strike freely in gentle heat if kept moist and shaded until rooted. Cuttings of Begonias now struck and grown on through the summer make fine plants for autumn and winter flowering. They require to be grown in a light position and to be well supplied with liquid manure in preference to shifting into large pots, 7 or 8-inch being quite large enough. Some of the best are B. insignis, B. Saundersiana, B. parviflora, B. semperflorens grandiflora, B. Ingrami, B. hybrida multiflora, B. fuchsoides, B. Digswelliana, and B. nitida odorata.



BONNER, THE SCOTTISH BEE-MASTER.

(Continued from page 289.)

Profits of Bee-keeping.—Our author argues strongly in favour of extending the practice of bee-keeping, and gives us glowing accounts of what might be expected were all hives kept for stocks for a certain number of years. His facts, however, show that the average profits of bee-keeping in those days could not be compared with those under modern systems. He instances 30s. to 40s. as what he considered large profits from single stocks in an exceptionally good season, though in one case he says he paid £4 for a single hive of honey. We infer that the average profit per stock, taking one season with another, must have been considerably under the smallest of these sums. I have before me some notes taken from a modern Perthshire bee-keeper's diary, which show that in 1878 from three stocks of bees he secured 373 lbs. 12 ozs. of honey, which he sold, used, or gave away to the value of £24 5s. His expenditure was £5 0s. 7d., thus showing a profit on three stocks averaging £6 8s., not reckoning one stock of increase. The same gentleman's accounts for 1880 show a total yield from five stocks of 469 lbs. of honey, value £38 15s. His expenditure was £5 4s. 10d., giving an average on the five stocks of £6 14s., notwithstanding that one swarm was lost and one stock had to be destroyed owing to an outbreak of foul brood. I have myself sold the produce of a single stock in super honey for upwards of £11. Though these are undoubtedly exceptional instances of profitable yields, I think it may be safely said that since the days of Bonner the average profit per stock has under modern management been at least doubled.

The Queen Bee.—Bonner was certainly before his time in his knowledge of the true nature and functions of the queen. Before he even heard of Shirach's discovery he practised artificial swarm-

ing and the rearing of queens from worker eggs. He knew also "that a queen who never saw a drone can lay eggs," though he did not seem to have observed that such eggs always produce drones. The fact of fertilisation by drone agency was unknown in those days, and hence our author is vastly bewildered when he feels called upon to indicate the nature of these. He confesses he is unable to say what drones really are produced for. He frequently witnessed virgin queens take their flight, but had no idea of the purpose in view. He argued that as he had undoubtedly bred queens in hives where there were no drones, and had nevertheless known these queens to become fertile mothers, drones were not really essential. This is perhaps the only serious deficiency in Bonner's knowledge of bees, and can be excused when all else is so clear and practical.

The Worker Bee.—In all essential particulars his account of worker bees is correct, and his knowledge of their instincts was in great measure the secret of his success in handling them.

Handling Bees.—No better idea can be given of the precocious management of our author than the following extract. What more can we do still?—"I could put twenty hives into one if necessary; I can cause my bees to rear as many queens as I please; I can rob my bees of part of their honey at any time; I could carry one hundred bee hives to London or Russia; I could rear five thousand bee hives in a few years if desired by any gentleman of property; I could travel through the streets of Edinburgh with three swarms of bees about me, unhurt; I can take a swarm out of any hive at any time; I can take ten thousand bees from ten different hives and unite them into one hive; and I can reinforce a weak hive with bees from any number of other hives, and from being the worst make it the best hive in the county. I can unite the bees of forty hives into thirty, twenty, or ten hives, and next summer divide those ten hives again into forty swarms; if I have a weak hive suffering from robbers I can strengthen it with more bees, and make them fit to rob any hive in the neighbourhood; if I have a hive of bees perishing with poverty or famine I can make it the richest hive in the place; I can take a common bee egg and cause the bees to raise it to be either a queen or a common bee as I please; I can make my bees rest upon myself or any person near me without offering us the smallest injury, and I can make them fall upon us with the fury of as many dragons, so that we would be glad to fly with as much precipitation as a few rioters would do before a regiment of dragoons."—WILLIAM RAITT, *Blairgowrie*.

(To be continued.)

THE INTERNATIONAL BEE-KEEPERS' CONGRESS AND EXHIBITION OF BEES AND THEIR PRODUCTS AT MILAN.

(Continued from page 290.)

DR. DUBINI spoke on the subject of hives with moveable and immoveable crownboards, and came to the conclusion that bees are quite as comfortable in the former as in the latter, in proof of which he referred to the American, English, and Swiss bee-keepers, who use chiefly hives with moveable crownboard. In Italy, he said, the majority of hives were certainly made after the model of Baron von Berlepsch; still Dubini hives with immoveable crownboard were also very much used.

Count Barbo reminded the meeting that the German bee-keepers had almost entirely discontinued using hives with moveable crownboard, because they found that these hives did not retain the heat so well as hives with fixed crownboard, and that breeding in them did not progress so rapidly.

Dr. Bianchetti recommended a hive of his own construction with moveable floorboard and crownboard.

Several speakers expressed themselves against hives with moveable crownboard, chiefly because they were of opinion that the chilling of the brood, especially in spring, might easily cause foul brood.

Mr. Marengi of Bergamo introduced the question, "Is it possible that combs which have been subjected to the fumes of brimstone may originate foul brood?" He related it had been observed in different apiaries that combs which had been exposed to the fumes of brimstone, and were afterwards given to healthy colonies, had, later in the season, contained cells infected with foul brood, while the brood in other combs not subjected to fumigation by brimstone which were inserted at the same time had remained in a healthy state. Mr. Locatelli, pharmaceutical chemist, did not think that exposure of the combs to the fumes of sulphur would cause foul brood, sulphurous acid being a disinfectant. He stated that he was in the habit of subjecting all his combs to the fumes of sulphur, and had never found it do any harm.

Before the meeting separated a committee was appointed to draw up a report as to the best means of improving the management of bees in Italy, and of gradually putting an end to the objectionable practice of killing bees by brimstone. The next Italian congress is to be held at Bologna in 1884.

The exhibition of live bees, hives, bee furniture, and the products

of bees offered much that was interesting; the large quantities and pretty arrangement of the honey and wax exhibited were especially remarked upon. The Italians, however, do not seem to be acquainted with the way in which various shapes and figures are produced by bees in Germany, and which are often quite artistic; in any case, I did not see any exhibits of this kind at Milan. A collection of honey, arranged according to colour, which, of course, depends on the kind of flowers the bees have been visiting, interested me very much, and a comparison of the tastes of the different kinds of honey was not less interesting. The bottling and packing had been done most carefully, so that the honey presented a very inviting appearance.

Hive bees were represented at the exhibition by about thirty colonies, some of remarkably fine colour, with large population. Of Egyptian bees there were also a few stocks exhibited, and I was particularly struck with a colony which Mr. Fiorini of Monselice had brought with him from Cyprus, and which was shown in the original hive, a Cyprian clay cylinder about 12 inches in diameter by 3 feet long.

The famous apiarian establishments of Professor Sartori of Milan, and Pietro Pilati of Bologna, had some splendid colonies and handsome hives at the show. Mr. Pietro Pilati's hives were pretty, with moveable and partly with immoveable crownboard, but all were so arranged as to suit the Italian climate; it would be quite impossible to winter bees in them in Germany. The hives used in Italy vary a little in size from the German standard fixed at Cologne, the Italian frames being 25½ cm. (a little over 10 inches) wide and 20 cm. (7¾ inches) high; double frames 40 cm. (15¾ inches) high are also made use of in that part of the hive where breeding takes place.

Honey-extractors were exhibited of various shapes. Among the bee furniture I did not observe anything that attracted my particular notice except a contrivance for melting down the combs, and to this I desire to draw attention, especially as it was highly recommended to me by several Italian authorities, amongst them Count Barbo and Dr. Dubini, who had tried it with success. The apparatus, which was exhibited by Mr. Leandri of San Gio in Groce, consists of a wooden box lined with zinc, the bottom of which forms an inclined plane, and is closed by a glass window. The combs are put into this box and exposed to the sun, the heat rays of which cause the wax to melt, a vessel being placed underneath to receive it. To judge from the specimens that were shown me the separation of the wax from the residue was perfect; the only point, however, I am doubtful about is whether the same results can be obtained where the sun's heat is not so powerful as in Italy. I intend to make a trial next summer, and shall have much pleasure in communicating the result at the next meeting of German and Austrian bee-keepers.

I cannot conclude without referring to the large and valuable collection of works on bees exhibited by Mr. von Keller, author of the "Bibliographia Universale di Apicoltura," for which he was awarded a prize at the Erfurt Exhibition. The collection consisted of works in almost every language, and even contained Japanese and Chinese books on bee-keeping, with illustrations. I believe there is not another collection of works on bees of the same completeness in existence. It shows us what can be done when neither time, trouble, nor money is spared in obtaining one's object. Whether among the many hundred volumes all the languages were fully represented I was unable to ascertain. I was much pleased, however, to observe that the valuable works of our great German bee-masters both ancient and modern were almost all in Mr. Keller's collection.

The Congress, as well as the exhibition of bees and their produce at Milan, fully proved how eager the Italian bee-keepers have been to appreciate the new theory of bee-keeping enunciated by Dr. Dzierzon, and we can only wish that their efforts, and especially those of their central association under the worthy and intelligent leadership of Count Gaetano Barbo, may meet with further success.—Dr. FRIEDRICH KUHL (translated from the "*Bienenzeitung*," No. 6, by Mr. Alfred Neighbour).

TRADE CATALOGUES RECEIVED.

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Stove and Green-house Plants.*

De Smet Frères, Ledeborg-lez-Gand, Belgium.—*Supplement to General Catalogue.*

William Potten Sissinghurst, Staplehurst, Kent.—*Catalogue of Bedding Plants.*

J. C. Padman, Boston Spa, Yorkshire.—*List of Bedding Plants.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—Letters arriving on Wednesday morning cannot be answered satisfactorily until the following week.

Books (E. D.).—Your request for a "list" of books is very indefinite, and further without knowing your object we are scarcely able to say which are the "best" for your purpose. All the works published at this office are good, a list of which, with prices, can be obtained from the publisher. You might also write to Mr. B. S. Williams, Victoria Nurseries, Holloway, for a list of his works, and Messrs. Blackwood, 37, Paternoster Row, London, for their catalogue. The "Gardener's Assistant" published by Blackie & Sons, Paternoster Buildings, is a good and comprehensive work, the price of which they will send you on application. (S.H.).—The paper to which you refer is not yet printed.

Postal Flower Boxes (C. S. & Co.).—We know of no boxes more suitable for this purpose than those made by Mr. Lovel of Weaverthorpe, York. They are made in different sizes, and samples with prices can be obtained on application to the vendor.

Pansies (F. J. P., Tasmania).—In accordance with your request we have forwarded your letter to a gentleman who is certainly competent, and we trust will be willing, to aid you in obtaining what you desire.

Prize Medal (Success).—Have you written to the firm mentioned in your letter? That appears to us to be the first step to take in the matter. We do not know what the rule is under which the medals are granted, but we think that the inscription should be engraved on the medals before presentation. It is not improbable that this course will be followed in future.

Guano for Plants (C. D.).—You ask if guano is good for Ferns, Lilliums, and "other greenhouse plants." It is good for most softwooded plants that need more support than the soil affords, but must be used carefully. Half an ounce to a gallon of water must be the maximum strength, and twice a week will be often enough to apply it. You had better, however, only apply it at half that strength for the Lilliums and root-bound Ferns. Guano water applied to plants that are not root-bound often does more harm than good, and it must never be given when the soil is quite dry. Not knowing what the "other" plants are to which you allude we are of course unable to advise you respecting them, but you will act safely by using guano cautiously.

Laced Polyanthus (H.).—We think very highly of the variety of which you have submitted a truss, not because one of the flowers has an abnormal number of petals, as this is not unusual, but because it is an excellently formed and smooth flower of a pleasing colour and with what is far from common, a clearly defined and distinctly coloured Picotee-like edge. You may appropriately call it a Picotee Polyanthus. We have a great number of varieties, but not one like it, neither was there one at all similar at the late Auricula and Polyanthus Show at South Kensington. Of course you will preserve and increase it. We should like to see a perfectly fresh truss; the flowers sent were considerably faded.

Aubrietias (Amateur).—When large numbers are required for spring bedding the simplest method is to raise them from seed. We have raised thousands in this manner; and although all the varieties were not precisely alike in the size of the flowers and habit of the plants, the diversity was not so great as to be any serious obstacle to the plants being employed in lines or masses, while when grown in isolated places in borders and on rockeries the variations are acceptable rather than otherwise. The plants cannot be raised too early now. We should sow the seed in boxes, to be placed in heat and covered with squares of glass, keeping the soil constantly moist. When the seedlings are large enough transplant them 6 inches apart in rows 1 foot asunder in good soil and a sheltered position, and with care in watering as needed, and stirring the soil frequently, good plants will be had in October for planting where they are required to flower.

Grubs on Apricot Trees (A. M., Notts).—The grubs to which you allude are highly destructive, and if you do not destroy them they will seriously injure the trees. We know of no satisfactory means of clearing the trees of their enemy than hand-picking. Every curled leaf should be examined, some of them being removed, and the others pressed firmly between the thumb and finger so as to crush the maggot. We have not found insecticides effectual, for the simple reason that the maggots are so closely enveloped by the leaves that it is most difficult to reach them with a solution of any kind, and dusting them with tobacco powder is impossible. If any of our readers can suggest a remedy we will readily publish it.

Wallflowers (S. Marston).—By far the best mode of raising a number of single Wallflowers is to sow the seed now in an open position, and eventually plant the seedlings a foot apart in firm and not too rich soil. Wallflower seed is often sown too late, and the plants have not time to become strong. We sowed a fortnight ago, and the seedlings are now appearing. The semi-double German varieties are also raised from seed, but the true doubles must be increased from cuttings. They strike readily when the shoots are tender in moderate heat, the same as Verbenas are propagated, or rather firmer shoots may be inserted under handlights in June. Any favourite single varieties must also be perpetuated by cuttings, as there is no certainty that seed gathered from any particular plant will produce flowers like the parent.

Soil for Figs (G. Godson).—Almost any well-drained soil will suit Fig trees, provided that, with its porosity, it also possesses that kind of mechanical texture which, whilst it readily admits moisture, will also retain sufficient to withstand a hot and dry period in the middle of summer. It is well, however, to lean towards an open porous character; for if any defect arises through extreme seasons of drought in consequence of the soil being light, a remedy of a very simple character is always at hand in the shape of a good top-dressing and a bucket or two of water. In preference, therefore, to building preventive walls and other matters involving extra expense, we say, So compound the soil for them that they may never grow very gross, neither be liable to suffer from sudden droughts. When the native soil of a garden is too clayey, thorough drainage and the introduction of a liberal amount of sand, lime rubbish, and ashes, with a slight amount of vegetable matter, will in general suffice to make it fit for Fig trees. If the garden soil is too light and porous some adhesive loam may be added, or indeed, anything which may happen to be at hand which is retentive of moisture in its own nature, yet not a "foreign" or rich manure.

One thing is requisite: the bed of soil should by no means be deep. We would never allow above half a yard in depth, unless in situations peculiarly favourable to the culture of this fruit.

Colchicum Parkinsoni (Curio).—We do not know that we can give you a better description of this plant than that written by old Parkinson himself, and published in his "Paradisus Terrestris" upwards of 250 years ago, as follows:—"This most beautiful Saffron flower rises up with his flowers in the autumn, as the others before specified do, although not of so large a size, yet far more pleasant and delightful in the thick, deep blew or purple-coloured beautiful spots therein, which make it excel all others whatsoever: the leaves rise up in the spring, being smaller than the former, for the most part three in number, and of a paler or fresher green colour, lying close upon the ground, broad at the bottom, a little pointed at the end, and twining or folding themselves in and out at the edges, as if they were indented. I have not seen any seed it hath born: the root is like unto the others of this kind, but small and long, and not so great: it flowreth later for the most part than any of the other, even not until November, and is very hard to be preserved with us, in that for the most part the root waxeth lesse and lesse every year, our cold country being so contrary unto his natural, that it will scarce shew his flower; yet when it flowreth any thing earlie, that it may have any comfort of a warm sun, it is the glory of all these kinds."

Cephalotus follicularis (F. S. N.).—This, we presume, is the plant you mean, and is popularly known as the New Holland Pitcher-plant. The following extract from our "Greenhouse Manual" will answer your inquiry:—"It bears numbers of little pitchers and is very interesting, and to do well should have a warm part of the greenhouse. Grow it in a mixture of chopped sphagnum and sandy fibrous peat, providing extra good drainage, keeping the plant rather high, and just covering the roots. It is well to insert the pot in one of larger size, filling the interval with sphagnum moss, and cover with a bellglass fitting the inside of the outer pot, taking off and wiping dry occasionally. In summer the pot may be stood in a saucer kept full of water, lessening the quantity towards autumn and keeping empty in winter, and with the bellglass tilted or slightly raised. The compost must be kept wet in summer, but less so, yet moist, in winter."

Peach Leaves Blistered (W. Thomas).—The leaves are blistered, which is occasioned by cold affecting the sap vessels in the early stages of growth, and the parts so affected are afterwards attacked by a fungus. The only remedy is to remove the shoots and leaves so affected by degrees, and when the weather becomes warmer the growth will come free from deformity. The only means of preventing the disaster is to employ good protection for the blossom and shoots in the early stages of growth, it being rarely that trees grown under glass are so affected. The cause of the blossom falling without setting is no doubt due to the imperfect ripening of the wood, which may be remedied by lifting the tree in autumn and bringing the roots nearer the surface, well firming the soil, so as to induce the production of short-jointed shoots, greater solidification of growth, and maturity of wood.

Watering Vines (T. E.).—If you have no tank in the house that you can fill with water, nor can get a large tub (old paraffin casks are cheap enough), you appear to have no alternative than to continue your present method of using cold water. Mulching the border thickly will lessen the necessity for frequent waterings. We once saw a very fine house of Grapes where the borders were watered with cold water from a well, and there are some very good gardeners, one occupying a very prominent position, who do not consider cold water injurious to plants in warm houses. We do not, however, think your plan of sprinkling the entire border every other morning the best you can adopt. We should water the border in sections, giving a copious supply to each, mulching immediately. This would be better for the Vines, and less time would be occupied than by your present plan. A heavy watering once a fortnight or three weeks according to the weather would probably suffice for supporting the Vines.

Cropping Vine Border (L. Forbes).—You can neither turf over a portion of the border nor crop it with flowers without, to some extent, depriving the soil of its Vine-growing constituents; but it does not necessarily follow that in your case the Vines would be injured in their growth and crops impaired by the practice suggested. Some Vine borders are too rich, and in that case a crop of flowers would do them no harm; others are much wider than is necessary, and a wide margin of them might safely be occupied with other crops. If you had stated the length of the rafters and the nature of the soil we could have answered your question more satisfactorily. In a matter of this kind very much depends on the cultivator and the system of management pursued. We have seen most satisfactory crops of Grapes where the borders have been partially occupied with flowers, and we frequently observe inferior crops where a plant is not permitted on the border. When we see a vinery with rafters from 12 to 15 feet long and an elaborate border made 18 feet wide, we always think there has been a waste of labour and material, as we think you could grow equally good Grapes in such a house with a border one-third less in width. We should, however, prefer having the roots confined to a certain space, so that we could afford the Vines the necessary support, and know that they have it. This we could not know if they were allowed to extend through a border of twice the width if half of it was occupied with other crops.

Glass Copings (Idem).—A categorical reply cannot be given to your question. If the wall is low, the soil light and dry, and the summer hot we should remove the copings; if the conditions were the opposite of these we should retain them. If you desire more precise information, and will supply us with the data necessary for understanding your case, both as regards your Vines and Peaches, we will readily supply it.

Heating Unsatisfactory (Willesden).—You say you can "boil the water in the pipes in ten minutes." That being so, and if the water circulates freely—that is to say, the whole extent of pipes is heated quickly—you have then conclusive evidence that more piping is necessary. You ask if placing pipes in the potting shed would "improve the circulation." We cannot see that pipes so placed would do so. But you do not say a word about defective circulation of the water in the pipes now existing; you only say you do not obtain sufficient heat. The piping necessary for a house depends on its exposure, and if your house is in a bleak position additional pipes appear needed, although in a sheltered place we should have deemed the present piping (four rows) sufficient. Your plan does not show by any means clear enough for us to judge whether the pipes are properly arranged or not. You can judge for yourself if the circulation is good, and if it is you need additional pipes. You say you have only two pipes, but you show four in the plan. If you only have two rows they are insufficient.

Vine Leaves Unhealthy (E. C.).—We scarcely think the condition of the leaves is wholly due to the sulphur, though the fumes may have contributed to the injury. A more probable cause is keeping the house close too long in the

morning and then opening the ventilators so wide as to cause a sudden fall in the temperature. Air should be admitted early and gradually to prevent the temperature rising too high, not permitting the heat to unduly increase, and then aggravate the evil by reducing it suddenly. There does not appear to be any necessity for using sulphur on the pipes, judging at least by the leaves before us, and we should not employ it at present. With a judicious system of ventilating and allowing a free growth of laterals your Vines will, we think, soon recover from the effects of the check which they have received.

Potting Azaleas (S. F.).—Possibly your plants will sustain no injury whatever by deferring the potting until the time you can obtain suitable soil. Had you stated the size of the plants and pots, also the condition of the former, we should have been better able to advise you on that phase of the subject. If you must pot them now you may use half light turfy loam, and half leaf soil with a liberal admixture of sand, potting very firmly; indeed, as hard as the soil can be pressed in the pots. The shift must only be large enough for the potting to be done comfortably, and the soil the plants are now in must be moist, but not wet when transferred to the larger pots. Much care will be needed in watering, and the plants should be syringed frequently.

Superphosphate of Lime (T. N. A.).—When bones are reduced to powder by the action of sulphuric acid, the acid combines with a portion of the lime and forms sulphate of lime (gypsum), while the remainder of the lime and the whole of the phosphoric acid are dissolved. The solution, therefore, contains an acid phosphate of lime, or one in which the phosphoric acid exists, in much larger quantity than in the earth of bones. The true superphosphate or bi-phosphate, when free from water, consists of $71\frac{1}{2}$ of phosphoric acid, and $28\frac{1}{2}$ of lime. It exists in the urine of many animals, and is an important constituent of the liquid manures of the farmyard. The term "reduced" thus applies to this form of the manure, which is also known as bone superphosphate. Mineral superphosphate consists largely of minerals that contain much phosphate of lime, and coprolites or fossilised dung ground into powder and mixed with sulphuric acid and prepared for use by manufacturers of artificial manures.

Nitrate of Soda (Idem).—This is a very active stimulant. It is distinguished, like the salts of ammonia, for imparting to the leaves a beautiful dark green colour, and is applied with advantage to grass and young corn or crops of any kind, at the rate of 1 cwt. to $1\frac{1}{2}$ cwt. per acre. The nitric acid it contains yields nitrogen to the plant, while potash and soda are also put within reach of its roots, and no doubt serve many beneficial purposes. Upon land rich in phosphates, nitrate of soda is a profitable application to wheat. It is especially recommended for wheat on light, gravelly, and sandy soils, and on cold undrained clays.

Peach Leaves Injured (A. Fitch).—The foliage has no doubt been eaten by a small weevil, *Curculio cupreus* or *C. oblongus*, both of which occasionally attack the young shoots at this season of the year. These weevils are not easy to detect, but by examining the trees at night with the aid of a lantern they may often be caught at their depredations. Spreading a sheet under the trees and shaking the foliage will cause some of the insects to fall, and they can thus be secured. Syringing the trees with a decoction of quassia water made by boiling a quarter of a pound of quassia chips in a gallon of water, and diluting with two or three gallons more, renders the foliage distasteful to these and some other insects that attack Peach trees. We are obliged by your offer, and should be glad to receive a little seed if you have any to spare.

Uses of the Nettle (A. Londoner).—From time immemorial the Great Nettle (*Urtica dioica*) has been employed in the manufacture of textile fabrics, particularly by the ancient Egyptians; in Siberia, even at the present day, it furnishes the inhabitants with fishing lines and cordage; and M. Bonafous states that in many villages of Piedmont it is converted into cloths. The young shoots in spring supply a wholesome vegetable when boiled in the same way as other greens; and in some parts of the country they are extensively used in this way. As a fodder for domesticated animals the Great Nettle has been cultivated in Sweden for a very long period. The whole plant has been considered excitant, lithontriptic, emmenagogue, antiasthmatic, aperient, and astringent. A decoction of the plant, strongly salted, will coagulate milk without giving it any unpleasant flavour. By analysis M. Salladin found this plant to contain nitrate of lime, hydrochlorate of soda, phosphate of potash, acetate of lime, lignin, silica, and oxide of iron.

Names of Plants (J. Williams).—1, *Lycaste flava*; 2, *Allamanda nerifolia*; 3, *Pyrus spectabilis*; 4, *Amelanchier Botryapinum*; 5, insufficient without flowers; 6, *Euonymus europæus*. (J. M.).—Both specimens were much crushed, as such invariably are when sent enclosed in a letter. The white flower appears to be *Scilla bifolia alba*, and the tree is probably *Amelanchier Botryapinum*. (A Young Gardener).—1, *Asperula odorata*; 2, *Saxifraga Wallacei*.

COVENT GARDEN MARKET.—MAY 3.

A STEADY improvement in our market, with prices generally firmer.

FRUIT.											
		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	0	0	to 6	0	Lemons.....	case 15	0	to 20	0	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	Nectarines.....	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	case 100	4	0	6	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	15	0	20	0
" Red....	½ sieve	0	0	0	0	Pears, kitchen ..	dozen	0	0	0	0
Figs.....	dozen	8	0	10	0	dessert.....	dozen	0	0	0	0
Filberts.....	½ lb.	0	0	0	0	Pine Apples....	case 100	4	0	6	0
Gobs.....	case 100 lb.	45	0	60	0	Strawberries...	per lb.	4	0	8	0
Gooseberries....	½ sieve	10	0	12	0	Walnuts.....	bushel	7	0	8	0
Grapes.....	case 100 lb.	4	0	8	0						
VEGETABLES.											
		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4	0	Mushrooms.....	punnet	1	0	to 1	6
Asparagus.....	bundle	3	0	7	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	case 100	1	3	1	6	Onions.....	bushel	3	6	0	0
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	3	0	4	0
Brussels Sprouts..	½ sieve	1	3	1	6	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	2	6	3	6
Carrots.....	bunch	0	4	0	6	Kidney.....	bushel	3	0	3	0
Capsicums.....	case 100	1	6	2	0	Radishes....	doz. bunches	1	0	0	6
Cauliflowers.....	dozen	1	0	3	6	Rhubarb.....	bundle	0	4	0	6
Celery.....	bundle	1	6	2	0	Salsify.....	bundle	1	0	0	0
Coleworts.....	doz. bunches	2	0	4	0	Scorzoneria.....	bundle	1	6	0	0
Cucumbers.....	each	0	4	0	6	Seakale.....	basket	0	0	0	0
Endive.....	dozen	1	0	2	0	Shallots.....	case 100	4	0	3	0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3	0	0	6
Garlic.....	case 100 lb.	0	6	0	0	Tomatoes.....	case 100	4	0	2	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	0



POULTRY AND PIGEON CHRONICLE.

MANUAL LABOUR IN FARMING.

THE labour in connection with home farm management, although it is extremely varied, whether paid for in cash or otherwise, is of great importance, and will under any circumstances prove one of the principal practical points connected with the home farmer's position, which is in some respects peculiar. He has not to face the keen competition of neighbours, nor is he tempted to resort to the sharp practices which are but too common in some other cases, in order to maintain a position relatively to that of trade rivals. What his neighbours grow, or how much, is nothing to him, except that it may form a lesson to be copied or a scheme to be avoided. Farmers of every grade have interests in common, and such competition as exists amongst them is a friendly rivalry, arising from a desire to emulate each other in that calling which is the most extensive and important of national industries. We have sketched the simple position of the home farmer, because nothing but the absence of a sufficient amount of capital employed in his occupation can diminish his responsibility in the judicious management of the manual labour required in conducting his farming operations.

The labour of men and their families is of great consequence, for we hold to the opinion that no part of the varied expenditure in the farming business exercises so large an influence upon the balance-sheet of the home farm as well-appointed and judiciously ordered manual labour generally. There is, however, another side to this picture. The home farmer conducts his business under conditions which are ever varying, and which frequently baffle his skill and industry. He often has to deal with land naturally infertile. He must face the seasons, over which he can exercise no control. Crops to the growth of which he may have applied his own anxious care, and contributed all that good husbandry both in labour and manure can require, yet they may fail to fulfil their early promise. From year to year his crops are subject to great fluctuations both of quantity and quality. His cattle and sheep have for some years been affected by diseases formerly unknown, and have proved far more fatal and frequent than they used to be, while he is equally powerless to prevent them.

After thus referring to the home farmer's position and surroundings, we will consider the position of the farm labourer, and in doing so we shall find that the introduction of machinery in farm work, instead of reducing the labour bill, has generally throughout the country enhanced it. This circumstance ought to teach the labourer how futile it is to attempt by combinations to exact a certain amount of wages and conditions of labour, for we can recollect perfectly well the excitement in the year 1830 amongst them when combining for the purpose of destroying threshing machines, under the idea that it would reduce the employment and wages of manual labour. What was the result? Many who took part in the mobbing, as the movement was called at that time, were not only severely punished, but it has been found that as the use of machinery has been extended the wages of the farm labourer have gradually risen, with a more steady and constant employment. It illustrates a great and important fact—that the price of labour must ever in the long run be a matter of contract between the employer and the workmen.

To come down nearer to the present time, let us consider the

result of the establishment of the National Labourers' Union, which for some years put the farmers to serious inconvenience, especially in some districts of the kingdom, and at the same time agitated the minds and conduct of the farm labourers, and by combination in that way a fund was raised which enabled many labourers to emigrate; but with respect to the rate of wages it had but little influence, for the cause of a variation of wages which has occurred may still be traced to other circumstances than combination amongst the men. To illustrate this, let us take the rate of daily wages of able men employed of which we have a record in the county of Suffolk upon a light land farm in the month of May in the years commencing with 1847 and ending with 1874, which varied from 2s. to 1s. 4d. per day for the first seven years of that period. During the next seven years the price varied from 2s. to 1s. 8d. per day. For the next seven years the variation was from 1s. 10d. to 1s. 8d. per day. In the last seven years, however, the daily wage was from 2s. to 2s. 2d. per day. This statement represents the actual payment upon an important occupation of 367 acres, and but one thing is clear—that contracts between the masters and men decided the rate of wages, and that alone. This fact, however, leads us to a point at which it becomes impossible to state the influences at work during the whole of this long period. It is, however, sufficient to say that they were many and various, and we should be departing from the object of this paper if we were to attempt a description of them. We will now endeavour to define as nearly as possible what we think may fairly be included in the labour bill in farming.

The nominal rate of wages paid in a given district represents as a rule neither the labourer's full gain nor the farmer's entire outlay in this branch of expenditure. The items which really contribute to this expenditure may be classed as follows:—Weekly wages for manual labour; labourers' extra earnings from piecework, not including harvest; extra wages at harvest, whether paid by the week or in a lump sum for the job; difference in the value of cottage and garden where these are let by the farmer to the labourer rent free or at rentals below actual value; perquisites given directly or indirectly as a supplement to wages; wages knowingly paid by the home farmer in excess of the value of the labour given in return, as in the case of old or infirm hands.

We will first consider the question of weekly wages for manual labour, and for the regulation of which we have a practical guide, excepting the various customary payments recognised in the various districts of the kingdom, differing considerably in amount, arising chiefly from local circumstances and causes. For instance, in the case of farms near to large towns or mining districts, the price of hand labour of necessity on account of supply and demand is much higher than it is in various wide agricultural districts, where the people must either submit to the local value of their labour or migrate to other districts.

The old-fashioned way of estimating the value of manual labour in the purely agricultural districts used to be calculated by the price of Wheat, and the price of one bushel of Wheat with 2s. 6d. added was the weekly wage paid for an adult labourer. Thus when Wheat was selling at 7s. 6d. per bushel the wages would be 10s. per week, and during the Crimean war Wheat rose to 10s. 6d. per bushel; the price of labour then advanced to 13s. per week. This mode of estimating the value of labour existed chiefly in the eastern and southern counties. In some of the western and south-western grazing districts, where but little corn was grown, no calculation regulated by the value of cereal produce affected the estimate of labour value, and the wages were in various cases much lower than where it was based upon the price of corn. There was, however, one special feature in the value of labour at that period—the workmen always as a rule gave their strength and bodily prowess in exchange for the value received in the shape of weekly wages; and this point is extremely important as affecting the labour bill, and compares more favourably with the present condition and value of the services of the farm labourer, because at the present time, although the value of labour is higher than it ever has been previously as a rule, and that the money payment will command more of the necessities of life than at any former period, yet it is very much against the home farmer of the present when in truth he is obliged to state the now daily labourer as a rule gives his labour grudgingly, and often with ill temper likewise.

If we search for the cause or causes of this difference in the labourer himself and the value of his labour given, it raises as it were a host of points to which we may refer by affecting the position generally as between the labourer and his employer. The introduction of machinery has set free some hands, but generally to offer them employment only in other ways. For instance, forty years ago we threshed all our corn by the flail; now we thresh it all by machinery, although we grow no more corn; indeed, the acreage is rather less than it was then. It will be observed, there-

fore, that machinery does not, as was supposed it would, lessen the demand for manual labour, but diverts it into other channels, and we find that the cost of labour is regulated (in the labour bill) by the system of farming and the rotation of crops pursued upon the various occupations. Some forty years ago the farmer depended almost entirely upon home-made manure; now the use of artificial manure prevails, which affects the number of hands employed somewhat, and rules the demand for labour.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—There has lately been a little hindrance of the work for horses upon the arable land; at the same time, however, labour has been saved upon some of the fallows in preparation for root crops. The carting of manure from the yards has proceeded where it has been applied on land just cleared of a green crop, such as Rye or Trifolium fed off by sheep. The next work on this land will be to plough in the manure, followed by the presser, and as the land is moist it will work down fine with a little labour, so that drilling may be done immediately; but as the season for drilling Mangold is somewhat far advanced the work should all be done simultaneously with the ploughing, not only to gain time but to prevent delay in the event of the weather continuing showery. When it is too wet to work the horses on arable land they can be employed to fetch artificial manures from the station or town as the case may be, also earth-carting may be done and taken to heap there to be preserved until it becomes mellow and fit for earthing the cart horse stables, cattle boxes, dairy stalls, and pig pens. In fact, wherever animals are accommodated the earth floors will be found not only healthy for them to lie upon when properly and carefully managed, but prove a great saving of straw for litter—a matter of great importance in the pasture districts where but little arable land is held on the home farm, and also in gentlemen's establishments where straw for litter must now be purchased at a high price.

Hand Labour will now be various—filling and spreading dung on land before planting with Cabbage plants, the late rains having proved highly favourable for planting in the fields, especially if done with the spade, with women and boys to assist in setting and carrying of the plants. In showery weather both men and women may retire to the manure house, and be engaged in the breaking of manure, screening and mixing with ashes in readiness for the drill. The Yellow Tankard Mangold seems to be gaining in favour with the home farmer in consequence of its rich feeding quality. As, however, the bulbs do not come so large as the Globe variety they should be left thicker and closer in the lines at hoeing time to obtain the full weight per acre. The preparation of the Carrot seed may be done by the women when at work under cover, for we always like to have the seed hand-rubbed with the leather harvest gloves to take off the burr or husk, in order that the seed may be drilled with greater facility and more regularity. We know that it is a common practice to mix the seed without any preparation with the artificial manures, and drill them together; but we much prefer to free the seed from the burr and drill it in the same way as Mangold or Swede seed. As the grass crops are very forward and also likely to prove an abundant produce both on the arable and pasture land, the period of hay-making should be anticipated; and in doing so we ask the home farmer to seriously consider the avoidance of risk in hay-making offered by the use of Gibbs' hay-drying machine, which, although a very costly article, but it in various instances has been paid for in one year upon farms where much hay is made, and in districts where the price rules high. Mr. Gibbs' system of withdrawing the heat and moisture from hay and corn stacks by the use of his exhaust fan has proved also a great success, and is very simple in use and inexpensive in the first purchase. The home farmer will do well to visit the Bath and West of England Agricultural Society's coming meeting at Cardiff, or otherwise the meeting of the Royal Agricultural Society of England to be held at Reading, Berks, where we are informed that Mr. Gibbs' machinery will be shown in full work. The mowing machines, too, should now be overlooked and put into repair and condition ready for use. At the same time it will be well to overhaul any implements likely to be required during the haying season.

Live Stock.—On purchasing some Channel Island cattle lately immediately on their arrival in port, we met with some very choice stock in heifers just ready to drop their first calf, and in making our selection we obtained very nice animals both of the Guernsey and Jersey breeds. But on visiting a ship which was just loading with Jersey cattle for New York, and consigned, we were informed, to a gentleman at Philadelphia who is taking one hundred of these, the very finest, best bred, and choicest that can be obtained, we were much surprised at the splendid appearance of these heifers, which are due to calve next month; for although we have been constant observers of this breed of cattle not only on their first arrival in this country, but also in the exhibitions at the Royal and other agricultural cattle shows, yet we had never seen so many superb specimens of the Channel Island breed together before, and especially as the animals were all under three years old. And to show their value, we were informed that many of these heifers were sold and consigned at prices varying from £100 up to £200 each. The shearing of fat tegs has been going on for some time, and as it is necessary to use great care at the time of washing, we advise the home farmer to make

it a rule to be present. We have always done so, and have known great losses by trusting to the men entirely.

THORNE AGRICULTURAL SOCIETY.—The annual Exhibition of horses, cattle, sheep, pigs, dogs, rabbits, poultry, pigeons, cage birds, and flowers will be held on the 14th of June.

POULTRY AND PIGEONS

UNFERTILE EGGS.

WE have been somewhat surprised, considering the exceptional mildness of the past winter and the present spring, to have many reports from poultry fanciers of failure in hatching. Of course, failure may result from many causes, and is far more often due to mismanagement than to unfertile eggs. But we do not now speak of reports from the inexperienced, but from really practical fanciers who can be relied upon, and who tell us that they have a great number of clear eggs this season. Our experience, fortunately for us, has been far different. But that matters little; enough reports of failure have reached us to call for some explanation, and, if possible, some remedy. Of course, the fertility of the eggs depends upon the breeding birds of both sexes being in vigorous health and condition, and condition to a great extent depends upon the climate and season. Male birds especially are much affected by cold, and so during the winter and early spring it is a common thing to have many unfertile eggs. As we have said, our own early hatches have this year been unusually good; but we must confess that at the present time they are somewhat falling off, and our idea is that the warmth of the winter over-stimulated the birds and caused the production of too many eggs for their strength, and that the failures now reported are the result of exhaustion. Birds reared in this climate seem to need the usual bracing of the English winter, which they certainly have not this year had. No special treatment can possibly make up for this want. Apart, however, from the peculiarity of the present season, there are a few precautions which we believe would always ensure a much better proportion of productive eggs than is generally obtained.

1, Exercise is necessary to keep the breeding birds in health and vigour. A pen of simply fancy fowls, from which only a few eggs are required, and which are kept rather for beauty than utility, may well be confined in a small run, but stock from which a large supply of eggs and chickens is to be obtained must have plenty of exercise. We fear that the general attention given to poultry of late, and what is commonly called poultry "fancying," has accidentally caused fowls often to be kept in somewhat an unnatural way, and has so helped to make their eggs unfertile and their produce weakly. If a setting of cross-bred eggs is bought at a farmhouse the produce, as a rule, is not very good or very pretty, but it is a rare thing to find any eggs unfertile. When, however, we have our eggs from some famed poultry establishment where many breeds are kept in close quarters it is a common thing for half the eggs to prove clear, at least in the early part of the season. The want of natural exercise and food is probably the cause. Fanciers often tell us that they have at the beginning of the breeding season separated some half dozen of their best and most vigorous birds from the rest of the flock, and alone preserved their eggs for sitting. So far very good. It is always right that the breed of all animals and birds should be perpetuated by the most vigorous specimens of it. But too often these best birds are closely penned up, while the rejected inferior ones roam at large in the farmyard and over fields. The treasured eggs prove useless, while those of the common stock are fertile. Close confinement is the cause of the failure, and we always advise that if a really ample enclosed run with variety of ground cannot be given to the selected few that they should have the general run at large, and their inferior relatives be penned up. It is not only necessary to save eggs from the best specimens, but that these should be in the best of health.

2, To keep them in vigorous health when at liberty is no difficult task. We have written so constantly on the general management of breeding stock that we fear to weary our readers with recurring to the broad simple rules we have so often given for it. Of one thing we will remind them—spiced and exciting foods, though occasionally necessary to stimulate hens which are very backward in laying, have, if constantly used, a very bad effect upon the cocks. We fancy that this season the early stimulus given by the unusual warmth of the winter has had much the same effect—it has exhausted them.

There is another point not to be forgotten. It is commonly thought that every egg must be absolutely clear and unfertile, or must pro-

duce a chicken. This is not so. Of those that are duly fertilised there are some which have a stronger and some a weaker germ. People who frequently and carefully test their eggs during incubation know by sorrowful experience that red and mixy look of the contents of many an egg, in which a chicken has up to a certain point duly developed, and then dies for want of vigour and vitality. This difference in the strength of the vital germ in different eggs is very apparent when they are incubated artificially. In an incubator we find many more originally fertile eggs fail at different stages of development than we do when they are put under hens. Doubtless the natural warmth of the hen supplies some indescribable (if we may so call it) vivifying force which no artificial means can supply, and in its absence all the weaker germs fail and perish. It is no uncommon thing for purchasers of eggs to complain that worthless and unfertile eggs must have been palmed off upon them because at the end of the twenty-one days they are found "addled," and very unpleasant descriptions of their contents are appended to vigorous remonstrances with the vendors. The fact is, that their foul and "addled" state proves the very reverse—viz., that they were fertile eggs, for really clear eggs will, at the end of their incubation, be much the same as at the beginning.

Many things may have prevented their hatching, such as an originally weak germ, a check or chill during the time of incubation, a jar in transit, the prevalence of very cold winds, or even a chill from damp before they were set. The latter case we believe to be a very common one though seldom thought of. A hen which lays away will nearly always choose a dry corner; if, however, a nest has been thoroughly drenched before incubation we have never known eggs to hatch. This season we received a sitting of eggs from a distance beautifully packed, but in wet moss. We had perfect confidence in the sender, who assured us that she had hardly had a clear egg all the season, still a perceptible chilly feel about them gave us misgivings at once. An inspection before a candle on the fifth day showed us that all but two were fertile, but further examinations after a few days made it equally certain that something was wrong. Our fears did not belie us—one cripple was all the result. Doubtless forty-eight hours in damp moss had chilled them. To sum up our conclusions, they are: That to get the largest possible number of productive eggs it is necessary to have vigorous stock, that they should be well but not overmuch fed, and, above all things, should have plenty of run and exercise.—C.

OUR LETTER BOX.

The Management of Pigs (W. Courtman).—We have failed to find a comprehensive work on the breeding, rearing, fattening, and general management of pigs in the form of pamphlet. There are several essays upon the subject in the Journals of the Royal Agricultural Society of England. But we know of nothing so likely to meet your wishes as the two back numbers of the *Journal of Horticulture*, dated December 19th and 26th, 1878, as they give the information desired, the articles being founded on a long period of practical experience.

Hens ill (J.H.).—Your hens appear to be suffering from diarrhoea in a virulent form. Some defect of cleanliness either in their drinking vessels or in their housing is probably the cause. Look to this, and give those which are ill a dose of castor oil, followed by a little powdered chalk mixed in with the food. Try also a feed or two of rice well boiled in milk.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
April.			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	23	Inches.	deg.	deg.	S.	dég.	deg.	deg.	deg.	In.		
		29.231	53.8	51.2	S.	49.7	61.5	48.9	106.2	42.8		
Mon.	24	29.480	55.5	49.7	W.	49.8	59.2	46.6	109.7	43.0		
Tues.	25	29.477	49.6	44.7	S.W.	49.1	53.7	39.3	80.1	35.3		
Wed.	26	29.335	47.8	44.3	N.W.	47.7	52.9	37.2	107.8	36.3		
Thurs.	27	29.758	47.4	41.4	N.N.W.	47.3	53.7	33.4	100.0	30.6		
Friday	28	29.216	46.2	45.0	W.	47.3	57.0	40.9	111.3	35.2		
Satur.	29	29.476	47.8	43.6	S.	47.5	52.6	38.7	79.0	35.0		
		29.425	49.7	45.7		48.3	55.8	41.1	99.2	36.9		
										1.710		

REMARKS.

23rd.—Morning fine; heavy showers in afternoon with hail.

24th.—Showery day; fine evening.

25th.—Fine and bright early; rain commenced 11.45 A.M., and continued with much cold wind.

26th.—Damp at first, afterwards fine with some sunshine.

27th.—Bright early, afterwards dull with bright intervals.

28th.—Showery; fine evening.

29th.—Bright early; rain commenced 8.45 A.M., continued for several hours; heavy gale in evening.

Temperature lower than in the previous week, and almost exactly the average. Continuous heavy rain on 25th, and very heavy gale on 29th.—G. J. SYMONS.



11th	TH	Royal Society at 4.30 P.M.
12th	F	Quekett Club at 8 P.M.
13th	S	Royal Botanic Society, 3.45 P.M.
14th	SUN	5TH SUNDAY AFTER EASTER.
15th	M	
16th	TU	
17th	W	Royal Botanic Society's Summer Show.

ALPINE AURICULAS.

LOVERS of hardy flowers are greatly indebted to the florists for one thing—they have secured grand strains of flowers for furnishing seeds to those who are pleased with less perfect forms than is the florist proper. Of no plant is this truer than of the Alpine Auricula. Fanciers grow only named kinds I suppose, unless, perhaps, a few seedlings with a view to raising something that will add to their fame. Some of them save seed and sell it to the seedsmen, who retail to those who are not florists but lovers of flowers. This seed, if treated as I shall presently direct, will produce plants that will be better in some respects than fine named kinds. The latter are not always very robust, and the flowers, though exquisitely beautiful, are not always abundantly produced. Seedlings, as a rule, especially in the second generation, are hardier, more robust, and more floriferous, than named sorts, and when care is taken they are not less beautiful. Indeed, the flower-lover who is not a florist may consider his flowers more beautiful, and so far as robust health can contribute to this probably he is right. Possibly numbers may be pin-eyed, but unless some troublesome fancier shows him that he will never notice it. He will notice, though, that his flowers are in many instances the size of a crown. Possibly the eye may not be exactly circular nor very evenly defined, but he will have such a wealth of beautifully coloured flowers that he will have no time to speculate on such trifles.

Alpine Auriculas, like most Primroses, like a good heavy loam, opened a little with rich well-decayed manure. They are not so particular as to site so long as their roothold and food are suitable, but rather like to be shaded from the mid-day sun, especially when the soil is at all light or gravelly. But do not try to make anybody believe you love Auriculas if you do not provide a good loamy soil for them.

They are very easily propagated by offsets, and the time to do it is just after they are out of flower, and when showers are frequent and the air moist. Plants with half a dozen shoots may be divided, and in all cases planted with the soil up to the lower leaves. On light soils this should be done every year, in heavy ground once in two years. When not lifted a top-dressing of half loam, half manure, should be placed on $1\frac{1}{2}$ or 2 inches thick, just up to the leaves. This will insure a fine growth and a glorious display the following year.

Plants may be raised from seeds, and when the seed is from a good strain that is the best way by far. Seed from a good named collection is best, as you are at once sure of good flowers and a variety. Some people sow the seed immediately it is

ripe in a cool shady place out of doors, or in boxes in a frame. As soon as the seedlings are fit they are pricked off into other boxes, or on a bed of earth very near the glass, and wintered there. In spring the following year they are planted out, and after a year's growth is made they flower. Having tried both plans I recommend the following to those who can command the heat of a vinery at work, a stove, or a hotbed. Sow the seed in a wooden box thinly as soon after the new year as possible. Use medium loam, leaf soil, and sand, and keep it moderately moist. As soon as possible prick the plants out and keep them growing as rapidly as possible till April, when they can be again pricked out, this time in a prepared bed of the same kind of soil. Choose a rather shady place on a hard bottom, and in this spread 3 inches depth of the soil. Place the plants 4 inches apart, and cover them with a light for a few weeks. Supply water when necessary.

In June plant them 8 inches apart, either in beds or rows. If good loam be used and a liberal amount of thoroughly decayed manure be forked into the surface the plants will soon become strong. As soon as they are fairly rooted give thorough soakings of very weak liquid manure in dry summer weather. In September give a little top-dressing and press it very firmly down. Next spring you will have some fine Auriculas, but two years hence you will have them finer.

To still further improve your stock remove every plant that has stalks too weak to carry their heads erect. You want stout-stemmed plants. Deal the same with bad-coloured ones. Next save seed from every strong-stemmed plant that had flowers of a good colour, and treat this seed as before advised. —SINGLE-HANDED.

P.S.—The above plan is the best for anyone who wishes to have a glorious display of Polyanthuses. Giving them a long season the first year by starting early, aided by artificial heat, produces results attainable by no other means. If after Auriculas are planted a carpeting of some Sedum be put between the plants it will prevent the rain washing up dirt upon the flowers.—S. H.

[Some very vigorous and beautiful trusses of Alpine Auriculas accompanied this communication.]

THESE are charming in spring, and should be grown largely in all gardens where spring flowers are appreciated. Those who only grow about a dozen plants, and these probably with a single truss each, can form only a poor conception of the attractiveness and beauty of a good mass of various colours. I have a space of about 25 to 30 square yards planted with Auriculas, and many of them are bearing from ten to twenty trusses of flowers; in fact, the whole bed is a mass of bloom, and the air is highly perfumed with their fragrance. The beauty of these plants last year, although they were not so good as this year, impressed me so much that I raised several hundreds of seedlings, which are now producing small trusses of flowers.

The effect of plants in herbaceous borders cannot be compared with a number of plants grouped together. These Auriculas, to display their real beauty and true character, should be planted in a rather large bed cut out in the grass in some suitable position in the pleasure grounds, and I am confident, if the effect such plants are capable of producing could be generally known, they would soon become popular for the ornamentation of gardens in spring. It is not necessary that the

beds in which they are flowered should be occupied with them the whole year, as they can be safely removed after they have flowered. Auriculas are very accommodating, and much benefited by being replanted and divided if necessary after flowering. By the operation of replanting they form roots much nearer the foliage, and in consequence are better able to endure severe weather during winter than if they had several inches of bare stem. In spring, as they show signs of growth, a good top-dressing of rich loam and leaf soil is very beneficial, as with growth they quickly form numbers of roots, which at once take to the new compost, and assist the plants to produce flower trusses.

Whether the plants are removed from the bed in which they have flowered will depend upon circumstances and what individual cultivators wish to place in the bed afterwards. If only a spring display is required they can be replanted in the same bed. If bulbous and hardy plants are favourites, such as *Gladiolus* could be planted at the proper season without injuring the Auriculas seriously. The bed could be filled with *Liliums*, which I think should after planting be "left alone" and not disturbed. They do not require to be planted thickly, and the Auriculas after flowering would form an excellent groundwork for the *Liliums*. With care the Auriculas would not prove injurious to these bulbous plants intended to bloom later in the season. The only care necessary would be to see that the early-flowering plants did not retard the growth of the bulbs planted amongst them when their heads first appeared above the ground.

Alpine Auriculas are not only valuable for flowering in the pleasure grounds, but for the decoration of conservatories as well as the amateur's greenhouse early in the season. Their treatment for this purpose is simple: they can either be grown in pots for the greater portion of the year and plunged outside, or plants of good varieties possessing several crowns can be lifted and potted in September. If wintered in a greenhouse they will flower long before those outside, and when once grown their value for this purpose will soon be recognised, and they will afterwards be regarded as indispensable for early flowering indoors. Those who have not been accustomed to train many hardy plants to bloom indoors cannot form any idea of their beauty when associated with many greenhouse plants. None need fail in their culture either indoors or out, and those anxious to obtain a stock should sow seed at once in pans or boxes indoors or in a frame, and when large enough the seedlings should be pricked out singly in other pans or boxes. These plants are worth frame room for a time when it is necessary to advance them rapidly to obtain strong specimens in as little time as possible. They can readily be raised by those having neither glass house or frame if sown in a box or pan and then pricked outside.—SCIENTIA.

VINES AT LONGLEAT.

(Continued from page 339.)

SCORCHING AND CHILLING.

WHEN Vines are in flower it is advisable to have the ventilators slightly open at all times for the purpose of keeping a buoyant atmosphere, which is a great help to fertilisation. But immediately after fertilisation has taken place is perhaps the most critical time of all. It is then that foliage is what is called scorched, and rust is produced on the berries. I will try to explain how it happens. Most cultivators have occasionally seen a beautiful-looking dew on their Grapes, or perhaps even on the edges of the Vine leaves, on a bright summer morning. This dew is refreshing to growing plants, it is Nature's method of re-invigorating before the approaching heat of the sun, and shows that the night temperature has not been too high. But when it is seen in abundance in a house of Grapes, although it may do little actual harm of itself, its evaporation if not carefully conducted is attended by untold dangers. The dew is caused in the following way. The house

and its contents are allowed to become comparatively cool and remain so for some hours during night; in the morning soon after sunrise there is a great and sudden rise of temperature, produced by the sun acting on the small body of air confined in the house. The fruit, being cooled throughout, does not get warmed nearly so quickly as the air, and as a natural consequence the moisture condenses on its cold surface; and the same thing takes place on the surface of the leaves and stems in proportion to their vigour and thickness, those which are in the rudest state of health, consequently the thickest, being the most liable to accident in this way. Moisture also condenses on the glass and any cold metal, slate, or plaster which may be in the house, and in a less degree on the woodwork. When such a state of things is seen in a house of Grapes, the attendant, knowing it ought not to have taken place, is naturally anxious to get rid of it. Air is immediately given, and then what happens? The great disparity between the outer temperature and that of the house causes the warm air to rush out, taking much of the moisture with it, and thus by a rapid evaporation causes a complete chill, and we gardeners, for some unaccountable reason, when the foliage is injured in this way call it scorching. The chill leaves its marks most plainly on the tender skin of newly formed berries, but they are not visible for some time to any but the closest observer, and when they do show plainly the man who has done the thinning gets the credit for causing it by using dirty scissors or having too much pomatum on his head, when a very slight examination will show that there is rust where no scissors nor hair could possibly touch. Some Vines are especially liable to have their terminal shoots injured from the cause just mentioned, and the most susceptible as far as I know is *Alicante*. During the flowering period we have lately applied a little whitening to the east side of our vinery, mixing it with a little milk, a little size, or something which would hold it on for a time, and applying it with a syringe.

If anyone would like to prove what happens on giving air after the temperature has risen considerably, let him keep his Cucumber frame shut up closely without shade till he cannot see through the glass, say till ten o'clock on a bright summer morning, then give air and watch the result. We very often hear of amateurs' Cucumbers being injured in this way, but it is very seldom attributed to the right cause. They are generally said to be scorched by the sun, when they were in reality chilled by sudden and excessive evaporation.

I used to think that the scalding of berries in *Lady Downe's* and other Grapes was brought about by the same cause as rust and the so-called scorched shoots, but recent experience has taught me different. I am now fully convinced it is caused by too high a sun temperature after stoning has commenced. It is of no use attempting to hurry a fruit during the stoning period, it must have its own length of time; its flesh will not increase, it seems rather to diminish, and any attempt to hurry it will only end in disaster. A maximum of 80° in the shade after the house is closed is quite high enough for Grapes during this critical period, and if the temperature cannot be kept down to this figure otherwise, a little shade for such a variety as *Lady Downe's* will be advisable, but I do not think 10° or 15° higher when the ventilators are wide open will do any harm; at the same time I endeavour to keep

down as close to 80° as I can till there are signs of the skin swelling, when the Grapes may be pronounced safe as far as scalding is concerned.

TREATMENT AFTER STONING.

With the best cultivated Grapes colouring commences almost simultaneously with the second swelling, and then for the first time the treatment required for Hamburgs on the one hand and that required for Muscats and late Grapes on the other, in order to bring them all to the greatest state of excellence, is rather different. Supposing there is no necessity to hurry the Hamburgs, the slower we proceed with them now the better so long as the temperature is just sufficiently high to keep them moving a little; 55° at night is now a very suitable temperature, but a lower or even a slightly higher one will do very well, the principal point to insist on being an abundance of air. Indeed, so long as there is no cold draught Hamburgs cannot have too much air at this time, and they cannot be coloured properly without an abundance of it. I am not able to go far into the theory of Grape-colouring, but I can go so far with the practical part as to say that any house of Hamburgs when it reaches this stage, provided it has abundance of healthy foliage in proportion to the crop of fruit, can be coloured simply by giving sufficient air and sufficient water. It is very seldom indeed we see the Black Hamburg properly coloured, and consequently it is generally deficient in flavour. A purplish black will not do; it must be a real black with a blue bloom, and then the Black Hamburg is to a great many palates the best-flavoured Grape in existence. The berries can perhaps be swollen to a slightly larger size by keeping the house closer than I recommend during the colouring, but they will certainly lose something in colour, and colour and flavour in this case may be considered to be almost synonymous terms.

But many readers will say they do give abundance of air and yet fail to colour their Hamburgs, and many such cases have come under my notice, but I have generally been able to satisfy myself as to the cause of failure. The most general cause is an insufficiency of healthy foliage, brought about sometimes by too close stopping; at other times the watering has been insufficient, and red spider has had too much of its own way, or the leaves have been drawn out too thin at starting by excessive heat, and now by their warted appearance show that they have been trying to make up their deficiency in substance by patching, which patching must be but a sorry substitute for the genuine article. You will never see this warted appearance come on the surface of leathery-looking foliage, it only comes on that which has been drawn out very thin by insufficient light in proportion to the heat acting on it, and which is consequently deficient in texture. But the foregoing faults we may say come from what is generally acknowledged to be unskilful treatment, and there are other cases to be met where the treatment which is followed is such as is given in the best published treatises, and is carried out by skilful hands, yet there is a deficiency of colour, as we may witness in the second-prize stand at nearly any show in the kingdom, and too often also in that which takes the first prize even at our best shows.

If we visit the establishments where these Grapes were produced, we shall probably find none of the evils

I have just pointed out; but there is another which is far from uncommon, and that is, that although there is a good proportion of healthy foliage, and the ventilators have been open on all favourable occasions, yet, from the crowded state of the Vines and the fact that all the best leaves rest with their upper surface pressing close to the glass, they are constantly damp, so that no inhalation nor exhalation can take place; and in addition to this they, dog-in-the-manger-like, by blocking the passage prevent to a great extent the air and light reaching the rest of the foliage.

The remedy for this is to have the trellis further away from the glass. It should never be less than 2 feet away, and 30 inches if the house is a light one is better; then there is a chance for the circulation of air between the glass and the foliage, and not only is a circulation guaranteed, but the leaves, all having their pores exposed to its influence, are at perfect liberty to inhale and exhale, and besides they are not exposed to such great variations of temperature. We cannot tell what it is exactly that Grapes require to colour them properly, nor why Black Hamburgs should require a greater amount of it than other varieties do; but we know from practice that when the foliage is healthy and the opportunity is given for it to do so, it can abstract all that is necessary for the purpose from the natural atmosphere, and till some philosopher tells us how to supply the necessary gases and take away the objectionable exhalations in some other way, we must be content to bring about the desired end by the simple yet very effective old-fashioned plan of giving air not only to the houses but to the foliage. And we must remember that in our modern houses there is not so much chance for air to reach the foliage through the laps of the glass as there formerly was, for apertures are less in size and fewer in number.

As distinct from the Hamburgs, which only take from six to nine weeks (according to the size of the berries) to ripen thoroughly when colouring has commenced, it must be borne in mind that Muscats and thick-skinned Grapes when they reach this stage require fully three months to do them justice, and that in the case of such varieties as Alicante and Lady Downe's the swelling is continued after the colouring appears perfect. Muscats, if the oldest foliage can be kept on them, will continue to improve in colour from July to the end of November, and when they do this, and a whole house put on such a colour as we now and then see in an odd bunch at a Chrysanthemum show, no prettier sight can be imagined. True, there is a greater contrast between the black fruit and the foliage of crimson and gold in the late house, but the delicate harmony between the amber-coloured fruit and the quiet mixture of brown and gold in the foliage of the Muscats is, I find, the most pleasing to those who may be supposed to possess refinement of taste.

I should say it is impossible to have this picture in its fullest perfection in a house treated on the high-temperature principle during its early stages, as the older foliage would not have sufficient substance in it to enable it to last so late in the season, and later growth, though it may act as a rather poor substitute for assisting the swelling fruit, can never put on such a beautiful appearance, and in fact it is not nearly so good in point of utility. This much being admitted, it

becomes an imperative necessity to retain the earliest-made foliage as long as possible, and the best way to do this is to keep up what may be called a growing atmosphere, say a minimum temperature of 65° with the usual rise by day, the damping and watering to be done in the same way as during the earlier part of the season. Supposing the colouring to commence at the end of July, this treatment should be continued till October, when a little less heat, say 60° minimum, will suffice; but there must be no stint of water, and towards the middle of November we may come down to 55° at night, and that figure is low enough in the south of England till the foliage has fallen.

Probably a great many of my readers have never been able to tell when their Muscats did begin colouring, for when grown in the ordinary way with less than half a sufficiency of foliage, and such as there is, is crowded very much, they may be said not to colour at all, but grown in the way I recommend they commence to colour slightly with the commencement of the second swelling, and they seem to me to continue to improve as long as there is a scrap of good stout foliage left.

Happily the treatment which I have described as suiting the foliage is also that best suited to the fruit. The temperatures must be kept up something like those I have given, and yet there must be constant ventilation. It is not a great deal of fresh air that is wanted for Muscats and most of the thick-skinned Grapes as long as they continue swelling as compared with Hamburgs, but they must have that little both by night and day. When the swelling is finished and the foliage of the thick-skinned varieties shows signs of ripening, more air may be admitted gradually till we come to the time at which I have recommended the minimum temperature to be dropped to 50° , when we must try by giving abundance of air during the day to prevent the temperature of the house rising too high. We have merely to keep the Grapes now, and that requires a temperature as even as it is possible to have it.

The foliage of Muscats under the best treatment will towards autumn show signs of drying up round the edges, but it must not be concluded from this that it has finished its work; so long as there is a particle of green in the leaves they are capable of doing something, and must be encouraged by continuing a growing atmosphere to do it. You may be sure there is something wrong when the foliage is all off Vines which have not been hard forced so early as the beginning of November. Mine remain on till the middle of December, and every leaf except those gathered for garnishing colours and falls of its own accord. When foliage from accident or unskilful treatment is not allowed to do its work in autumn we not only have a loss in the quality of the fruit, but we make ourselves needless troubles for the following year.—WM. TAYLOR.

(To be continued.)

THE FORK AND THE SPADE.

THESE two tools are so very useful and so closely connected that no one who knows the full value of both would think of setting them up against one another. There need be no fear of the spade ever being superseded in our gardens, but there are times when the fork is more useful. For all kinds of digging and trenching the spade should always be used, but when the crops are growing the fork is superior to any other tool which can be used. Hoeing amongst growing crops is a practice very fre-

quently recommended at this season, but if forking were substituted it would be a decided advantage to the crops. It does not matter how loose the surface of the ground may be at sowing or planting time, repeated heavy rains will soon make it hard and ungenial for the plants. As the soil becomes dry again the hoe is generally used for breaking the surface again, and the earth 2 or 3 inches down is never touched, and here where the roots are running most the hoe does no good; but when the fork is used the result in every way is very different, as the soil is gently stirred for a considerable distance down, which admits air and moisture to the roots.

If any vegetables, such as Cauliflowers, Cabbages, or root crops, appear to be at a standstill, hoeing between them does not insure immediate improvement, but if the fork is used the effects are quickly visible. In earthing up any crop the drag hoe does it quickly, but the fork does it best, and should always be used for this purpose when possible.—J. MUIR.

STOCKS FOR APPLE TREES.

Is there any truth whatever in Mr. Edward Luckhurst's statements (see p. 337) that Rivers' Nonsuch Paradise stock imparts a late-blooming habit to the scion, or that the French Paradise induces the contrary—an early-flowering habit? We are further counselled to use late-growing sorts, such as Court Pendu Plat, as stocks, thereby to insure safety to the flowers of the scions through the late-flowering habit that would be thus produced, which may be worthy of a trial. I have for some years paid some attention to grafting Apples on various kinds of stocks, but have never observed that any such result was produced; extra vigorous trees are often a little later, but quite immaterial. Blenheim Pippin, for example, grafted on ten different kinds of stocks, all flower at the same time every season. Cox's Orange Pippin, some hundreds of trees grafted on the French Paradise, and about two acres of the same grafted on a mixture of stocks from Rivers', are at the present time all in full flower together, and this season most abundant. I fear Mr. Luckhurst in his eagerness to cite virtues for his favourite stock, Rivers' Nonsuch Paradise, has allowed his "valour" to exceed his discretion. The true French Paradise is noted for inducing precocity of flowering—i.e., the trees worked on this stock flower and produce fruit when quite young and small. It does not mean, as Mr. Luckhurst's remarks would lead one to suppose, flowering early in the season. This is a fallacy and cannot be too strongly stated. It would be a dangerous qualification, and were it so of course Mr. Luckhurst would be justified in recommending the Nonsuch Paradise in preference if it has the virtue attributed to it.

The Nonsuch Paradise is without a doubt a capital stock; it is preferred by many to the French Paradise. Mr. George Paul for one prefers it, and why? Because it grows more freely, makes a better stock as they say, and induces nearly equal early fruitfulness to that of the French Paradise. The French Paradise is disliked by many in the nursery trade, because "as a stock" it is difficult to keep alive. The stocks themselves have a singular habit of dying, yet when grafted the scion imparts life and vigour to the stock, and, notwithstanding Mr. Luckhurst's opinion, it is admirably suited for all varieties of medium growth. See the wonderfully fine fruits grown on imported trees, and those who saw the beautiful collection of Apples grown by Messrs. Veitch and Sons at Fulham may be interested to know that the largest and finest fruits were gathered from trees on the French Paradise stock.—B.

FERTILISERS—POTASH AND MAGNESIA.

IN the first paragraph of my last letter, on page 368, I observe that through an error the words "to the general and abundant use" are shown between inverted commas, instead of in italics as I intended. I had no intention, that is to say, of attributing these exact words to "SINGLE-HANDED," though I imagined that in using them I was giving his views in respect of the use of potash, and I wished to call his attention to them. From his last letter published together with my last in your impression of the 4th of May I learn that "SINGLE-HANDED" considers our views on this question identical, and most certainly I see nothing that anyone could cavil at (though more opposed than I am to the general addition of potash to stableyard manure) in the fuller explanation of his views now given.

"SINGLE-HANDED" describes some wonderful results obtained by the County of Cork Agricultural Society, in which an immense increase of crops followed the use of kainit as a manure. He states that if the increase observed was not due to the potash of the kainit it is difficult to understand how such results could have come about, and he leaves it to me "to crack" this "nut."

I cannot decline this challenge, if I break my teeth in the attempt, and I propose this solution :—

Kainit of the following composition was being freely offered in the market some years since, and it does not, I think, essentially differ from other samples of the manure. Potash sulphate, about 36 per cent. ; magnesia, sulphate, and chloride, about 29 per cent. ; common salt, about 31 per cent. In the tables of analyses of ashes of plants grown by Emil Wolff I find that the ash of the tuber of the Potato contains 59.8 per cent. of potash, and that the ash of the leaves and stem show an unusual quantity of magnesia. When gathered in August the per-centage of magnesia in the ash of the leaves and stems was 16.8 per cent., and when gathered in October no less than 22.6 per cent. A comparison, then, of the analyses of the manure and of the plant tuber and leaves would appear to explain the phenomenon mentioned, for the amount of magnesia present in the soil is generally small, except in the magnesian limestone districts, or in those in which serpentine prevails.

I remember, moreover, to have come across a statement made by Dr. Hogg of the surprising effects produced in his Potato crop by a manure of which magnesia was the prevailing feature. His experiments were made with Lapstones. One row he manured with a "heavy dressing" of farmyard manure ; another row he manured with the compound containing the magnesia. The farmyard manure gave a crop of 42 lbs., with many diseased tubers ; the magnesia compound gave a crop of 93 lbs. Dr. Hogg observed that as the growth progressed the row dressed with the magnesian manure "went clean away from the other." If my explanation of the results obtained by the Cork Society is not the correct one it looks at least very feasible, and is well worth the further attention and experiment of "SINGLE-HANDED," more especially as he apparently shares in the popular view of the bad qualities of magnesia as an agricultural application. He attributes to its hurtful effects, indeed, the ill effects which Dr. Voelcker observed sometimes to follow the use of kainit. I may perhaps be allowed to add, without appearing captious, that I did not quote this extract from Dr. Voelcker's reports to show that potash was *sometimes* hurtful (for this might be said of any fertilising element improperly used), but I quoted this extract amongst others to show that Dr. Voelcker even could, in the question of the economy of such addition of potash as "SINGLE-HANDED" had recommended, still sign himself as I do.

In reply to your correspondent's question relating to muriate *v.* sulphate of potash under "Notes on Current Subjects" last week, my reply is that the muriate is undoubtedly the cheaper salt, as well as the more soluble. But both must be more than sufficiently soluble for the wants of plants. Ville obtained less favourable results with the sulphate than with the muriate.

Dr. Voelcker's reports, from which I quoted at pp. 325-6 of the *Journal of Horticulture*, are given in the volumes of the *Journal of the Royal Agricultural Society*, published by Messrs. Clowes and Sons, Stamford Street, Charing Cross, and sold to the public at 6s. per number. The volumes of the *Journal* could be referred to at the library of the Royal Agricultural Society in Hanover Square, and I believe also at the educational library of the South Kensington Museum. Copies can generally be picked up cheaply at the second-hand bookshops.—INQUIRER.

ASTERS.

As we are now fast approaching the bedding-out season, amateurs and professionals will be contemplating their arrangements for bedding the seedlings at their disposal in order to make as effective a display as possible. The scarcity of Asters this year, which are now so deservedly popular, and which have held such an important part in beautifying our borders, is very much to be deplored. The seedlings raised from this spring's sowings are far from being adequate to the usual requirements. The causes which have led to such disappointing results are the continued wet weather which prevailed on the Continent last autumn as the seeds were arriving at maturity, and the absence of wind to shake out the rain which had lodged in the flower-heads, thereby preventing the proper development and perfection of the seed. The crop was the most deficient on record, and to make things worse the germination of what little seed was saved is correspondingly low. It is a lamentable fact that the finer varieties—those which have been brought to the highest state of perfection through the assiduous labour of the grower, and those which are most in request by the public—viz., the Chrysanthemum-flowering, the Paeony-flowering, and the Victoria varieties, are those which have suffered most.—J. MCK.

VEGETATION IN FIJI.—The following is an abstract of some interesting remarks upon the vegetable products of Fiji which occurs

in Mr. J. Horne's work, "A Year in Fiji"—Fruit is plentiful in Fiji, and might with advantage be exported, especially Bananas, Pine Apples, and Oranges. Attention is called to the necessity of re-foresting. Of the agricultural products, mention is made of copra, sugar, cotton, maize, tobacco, and coffee. Of copra, the dried kernel of cocoa-nuts, there was exported in 1878 £122,194 worth, but little oil was made, the copra paying better. The sugar crop is steadily on the increase. For 1880 it was estimated to produce £60,000, and when fully developed, Mr. Horne estimates a possible yearly make of about 200,000 tons. Coffee trees thrive well, and the coffee export in time will be second only to sugar. Cotton is being displaced by the sugar cane. The trees yielding caoutchouc in Fiji are Apocynaceous, belonging to the genera *Tabernaemontana* and *Alstonia*. The Fijians collect the juice, which exudes from the broken leaves and branches, in their mouths. Several mouthfuls are then rolled into a ball, and the juice congeals so quickly that it requires very little working with the fingers before it is dry and ready for the market. Samples sent to England were priced as high as 2s. 6d. a pound. Sandal-wood is becoming scarcer and dearer each year in Fiji ; in 1878 it was worth £10 a ton.

SELECT NARCISSI.

EVERY cultivator of hardy plants includes amongst the most beautiful of his spring-flowering favourites some at least of the varied and numerous Narcissi, for though in colour they are re-



Fig. 76.—*Narcissus triandrus*.

stricted to shades of yellow with white, yet the flowers possess such diversified and graceful forms generally, in combination with a most agreeable fragrance, that they need only be seen to be admired. From admiration arises a desire to grow them ; and here they possess another great recommendation to amateurs—very few are in the slightest degree fastidious as to the situation or soil devoted to them, provided only that it be neither excessively wet nor dry. In shady sheltered positions where few other plants will succeed these will thrive luxuriantly, and even in exposed beds they will produce satisfactory results. It is not surprising that with so many admirable qualities to entitle them to attention that they gradually attained a foremost position amongst hardy spring flowers, and very few gardens where such plants are especially encouraged are without a typical collection, often including many rare and choice forms.

Visitors to Mr. Warc's nursery at Tottenham, or Messrs. Barr and Sugden's at Tooting, just when the Narcissi are at their best, can form some idea of the number of varieties and hybrids now obtained, their several distinctive characteristics, and the general range of beauty in the Daffodils. There is only one difficulty

attending these large collections—namely, they are a little confusing. At the first glance all appear equally good, and in each bed we find some fresh beauty remarkable either for its rich golden hue, the contrast of pure white and primrose, or an enchanting grace of form, all having special claims upon our attention. It is for this reason that selections are of great value to amateurs and others who may not have the time or opportunity to carefully compare so many with a view to separating the most distinct. Both Messrs. Barr and Ware have sent us specimens of a number of their best varieties, and from these we have selected several as particularly worthy of note, some of which are shown in the accompanying woodcuts, and others will be described in a subsequent issue.

In the large plate (fig. 77, p. 387) is represented a group of Messrs. Barr's varieties, which include three of the beautiful hybrids or crosses that have been obtained by ardent admirers of the beautiful genus in comparatively recent years. 1, Backhousei is named in honour of a raiser and grower of Daffodils, Mr. Backhouse of Wearsdale, Yorkshire, and forms one of a type, as it were. The petals are ovate, pale yellow, and spreading, the crown being large, and rich orange. It is a distinct and attractive form. 2, Albicans has very pale sulphur yellow flowers nearly white, the petals and crown being of similar tint. The long straight tube in this form is one of the distinguishing marks. 3, Nelsoni constitutes another type of hybrids which have been termed shortened bicolors, and are regarded as intermediate between bicolor and Macleayi. That figured has white rounded petals with a short bright yellow crown—a most pleasing contrast. 4, Barri conspicuus is one of a third group of crosses said to be between *N. incomparabilis* and *N. odoratus*. That now specially referred to is a charming form with pale yellow rounded petals, and a shallow open rich orange crown, having in a young state a bright scarlet margin.

The small engraving (fig. 76) represents one of Mr. Ware's gems—*Narcissus triandrus*, a dwarf and pretty species which has been long known in this country, having been originally introduced from the continent nearly two centuries ago. The small neat pale yellow flowers are well shown in the woodcut, with one leaf, which, as can be seen, is rush-like in form.

OUTDOOR MUSHROOM CULTURE.

MR. MUIR has no doubt travelled extensively, but has never seen an outdoor Mushroom bed with "half a crop," yet sometimes he has gathered "a few" from outside beds. Your correspondent, competent as a gardener as all admit him to be, evidently lacks experience on the subject to which he has referred in a left-handed manner on page 361. In his extremity he has alluded to a particular writer as giving instructions on Mushroom-growing in houses as well as outdoors, as if there were anything inconsistent in that. The said writer at least practises all he preaches, and does not attempt to disparage what he does not understand.

Like Mr. Muir, I have travelled somewhat; it is even possible I may have been longer on the road and gone further afield than he has, and certainly I must have been in a different direction, for I have seen miles of Mushroom beds outdoors during the past thirty years, and have assisted to make not a few. Many of the beds I have thought yielded good crops, as they were often better than that represented on page 359, which is a fair crop; and I have thought the produce was also good, because better than is usually seen in prize collections of vegetables at the leading shows.

Mr. Muir has often been told that Mushrooms can "easily" be had with the temperature at 90° in the shade or down at zero. There appears to be a little exaggeration somewhere, probably on the part of the said informants. Mushrooms cannot "easily" be had under these extreme conditions, but they can be grown in the open air during several months in the year as easily as in houses, and as quickly, with at least equally heavy crops, and as a rule much finer produce.

As showing that Mushrooms can be grown outdoors with some approach to regularity, and that a good crop is not a matter of chance, I will adduce the latest records of the yield from 150 yards of beds—namely, during last month. The following are the dates of gathering and the quantities sold:—April 1st, 122 lbs.; 4th, 73 lbs.; 6th, 114 lbs.; 8th, 108 lbs.; 11th, 160 lbs.; 13th, 104 lbs.; 15th, 159 lbs.; 18th, 207 lbs.; 20th, 180 lbs.; 22nd, 180 lbs.; 25th, 150 lbs.; 27th, 222 lbs.; 29th, 221 lbs.; or a total of 2000 lbs. This is a perfectly fair example of ordinary practice. I may also add that one bed 25 yards long yielded in the same month 529 lbs. during three weeks—namely, 159 lbs. one week, 180 lbs. the next, and 170 lbs. last week.

When Mr. Muir can dispute the accuracy of these results he will have a stronger case against the outdoor system of Mushroom culture than he has now; and with the object of aiding him to accomplish in a week what he has failed to see in his year of travel over a kingdom, I am authorised to state that he can see, by appointment, outdoor Mushroom beds (bearing, as I think, a little more than "half a crop") on application to Mr. Barter, Portland House, Lancefield Street, Harrow Road, London, W. In fact, anyone on writing to Mr. Barter and affording time for his reply, can see the beds in question. Already three tons of Mushrooms have been sold this season from a plot of ground in what may be fairly termed an open field, and two tons more will be gathered during the next three months.—J.

IN your last issue Mr. Muir appears to doubt the possibility of satisfactory crops of Mushrooms being produced at almost any period of the year on "outdoor beds." A week ago I should have been almost equally doubtful, but having read the articles now appearing in the Journal, with the somewhat startling figures therein contained as to the quantity produced and profits realised by one of the best market growers (Mr. J. Barter), I took the opportunity afforded me on Wednesday last of visiting Mr. Barter's ground and judging for myself. I was fortunate in meeting him there, and in arriving whilst the process of gathering the crop for the next day's market was going on. I was pleased to find him ready to explain fully all points essential to success in their cultivation; and I am now convinced from what I then saw and heard, that the production by him during nearly ten out of the twelve months in the year of crops similar to that figured in your last issue, is as easy and certain as is the production by a gardener of the ordinary routine crops of the kitchen garden. I am also convinced from what I then saw that the figures and statements made by Mr. Wright and the wood engraving above referred to are not exaggerations of the actual facts.

Mr. Muir says his experience of outdoor beds is for them to produce at best only half a crop, and that probably not until months after they had been made up and spawned. Mr. Barter's experience is for them to produce almost invariably a first gathering in about two months after being made up, and to continue to produce heavy weekly gatherings for a period of about ten weeks; also, so far as I then saw, the produce is of far better quality than that usually produced in Mushroom houses, the Mushrooms being much more solid and heavy.

I am glad this method of Mushroom culture is receiving the attention it demands, as the subject is of very great importance to gardeners generally; and I would strongly advise all gardeners who can do so to not only read Mr. Wright's articles as they appear, but also to pay a visit to Mr. Barter's grounds, when I believe they will, like myself, learn a better lesson in Mushroom cultivation than they have learnt in the whole of their previous experience.—W. K. W.

MR. THOMAS WOODHEAD.

I LITTLE thought when mentioning the name of this most excellent Auricula grower, and expressing a hope that his serious illness might have a favourable issue, that before those lines were in print he should be taken from us. I some two years ago made his acquaintance at Shobden Head, and gave an account of his magnificent collection of Auriculas, and of the very hospitable reception I had from him and his good sister. Little did I think then that it was the only visit I should ever pay him, living as he did in so secluded a position. He was but little known comparatively speaking, but he was a true sample of a north countryman—rough it may be, but downright and sincere, a warm friend and an enthusiastic florist or rather auricularist, for it was his one flower, and to it he had given his first and only love. He had begun to raise seedlings, many of which were of great promise. One was exhibited at the late Show, and gained a first-class certificate; it was, however, inferior to one in the same class, Miss Woodhead, which it is to be hoped may yet find its way into commerce. I am sure all who know him and how sincerely he was attached to his sister will deeply feel for her in her bereavement.

May I take this opportunity of correcting a mistake (there were several), in my last paper, where I am made to say in writing of Mr. Horner's stand, that some were his own seedlings; it should have been *seven*.—D., Deal.

I AM sorry to have to inform you of the death of my dear friend, Mr. Thomas Woodhead. He died on Sunday the 30th ult., at 4 P.M. He had been ill since last November, but we did not anticipate his death, which took us all by surprise. On the Thurs-

day previous when I was there he was as cheerful as possible. How or what will be done with the plants I cannot as yet say, but am inclined to think Miss Woodhead will try to continue growing them, as she had as much affection for the plants as Mr. Woodhead had, and there are many fine seedlings amongst them.—GEO. RUDD.

VINES MILDEWED.

I HAVE seen several complaints lately about the buds and leaves of Vines. I noticed something wrong with the leaves of mine a week or two ago. Some of the leaves looked as though they had been scorched, and I was disposed to think at first that air had not been given early enough in the morning, but on examining the leaves with a magnifying glass I detected signs of mildew. I immediately put on a fire, and turned all the bedding plants out of the house and dressed the pipes with sulphur mixture, which I believe will check any further mischief. When the bedding plants are in the house in spring I generally keep two cans of water in the house for watering the plants to take the chill off, but I believe it is a bad plan where mildew is liable to occur, and that a little warm water should be got from another source to mix with the cold in preference. I once had mildew very badly, and the Grapes were quite white with it, but the sulphur mixture cured it completely. The receipt is well known, I believe, but I can give it if wanted.—AMATEUR, Cirencester.

[Your method of using the sulphur would doubtless be acceptable to many amateurs.]



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, James McIntosh, Esq., in the chair, the following candidates were elected Fellows—viz., His Majesty the King of the Netherlands, C. Bloodworth, Thomas Butler, Lieut. General Sir J. H. Lefroy, William Chambers Lefroy, Mrs. Liddill, Mrs. Parkinson, Miss Randall, Lieut.-Colonel J. E. Varty Rogers.

— THE tree planted on the 6th inst. at High Beech in commemoration of HER MAJESTY'S VISIT TO EPPING FOREST was a specimen of the Scarlet Oak (*Quercus coccinea*), from the nurseries of Messrs. William Paul & Son, Waltham Cross.

— IN the Victoria House at Kew the extraordinary ARISTOLOCHIA GOLDIEANA which was figured and described in this Journal, pages 413 and 456, vol. xxxviii., is now flowering again, and lovers of the curious should endeavour to see one of the enormous blooms fully developed. It was in 1880 that the plant first flowered at Kew. Last year buds were produced but not developed, and now it has three or four in various stages. The first one open was 18 inches in diameter from tip to tip of the tails, and about a foot deep without the tube.

— THE following provincial Floral and Horticultural Societies have been admitted into union with the ROYAL HORTICULTURAL SOCIETY this year, and have received the usual medals to be competed for at their Shows—viz., Atherstone Horticultural Society, Bristol Chrysanthemum and Spring Show Society, Cirencester Horticultural Society, Dalton-in-Furness Horticultural Society; Durham, Northumberland, and Newcastle-on-Tyne Horticultural Society, East London Floricultural Society, Maidstone Horticultural Society, Norwood Amateur Floral Society, and the Royal Agricultural and Horticultural Society of Jersey.

— "A. B." asks if any of our correspondents can kindly oblige by furnishing "a recipe for making DANDELION WINE, as made from the flower-heads of the plant." We will readily publish any replies we may receive to this query, as the information sought could scarcely fail being useful to many of our readers.

— MR. LEE of Clevedon has sent us samples of IRON LABELS

as used in his Violet beds. These are simply iron rods, the strongest nearly half an inch in diameter, an inch or more being flattened at one end and a point formed at the other. On the top or flattened portion numbers are struck with a brand. These labels are nearly a foot long and galvanised. They are practically imperishable, and excellent for use in nurseries, or where the system of numbering plants is adopted.

— VERY noticeable in the Orchid house at Kew is a fine specimen of EPIDENDRUM BICORNUTUM, or Diacrium bicornutum as it is there named. It is bearing half a dozen or more racemes, each with eight to ten ivory white fragrant flowers with neat ovate sepals and petals, the lip being dashed with yellow and dotted with violet. This species, though extremely beautiful, is at present represented in few gardens, and nowhere does it succeed better than at Kew, for it is reputedly difficult to grow satisfactorily—but there it grows and flowers quite freely. In the issue of this Journal, May the 5th last year, page 358, an interesting account of the plant is given by an experienced Orchid grower, who observes—"The best way to grow it is in baskets suspended from the roof or on pieces of Tree Fern stem. I have grown and flowered it under both systems, and if grown in baskets a compost of very fibry peat, moss, and charcoal should be employed. The three most essential requirements are the heat of an East Indian house, exposure to sun, plenty of moisture, and a moderately low night temperature."

— "A. H." asks if any of our correspondents can inform him if the rock called TUFFA can be obtained near Bridgend, Glamorganshire.

— MR. ROBERTS, The Gardens, Gunnersbury Park, finds TROPÆOLUM ARTHUR VEITCH and BRILLIANT two very useful varieties for winter flowering. The first-named has flowers of moderate size, but excellent form and very dark scarlet approaching maroon in colour. The other has large flowers, also of good form and of an intensely bright scarlet hue, well indicated by its name. They both seem admirably adapted for culture in pots and produce their flowers very freely.

— WRITING under date of May 5th, "WILTSHIRE RECTOR" observes:—"I yesterday had a pudding of DUMELOW'S SEEDLING APPLE saved on purpose to see if they would keep till May. In spite of the warm November, and not a sufficiently cold fruit room, these Apples cooked as fresh and with the true acid flavour as if it were January and not May, so they more than meet Rhubarb, and this season, at any rate, last until Gooseberry time."

— "AMATEUR, Cirencester," asks if any of our correspondents can tell him where he can obtain a little seed raised from the seed apples of the MAGNUM BONUM POTATO, as plants grown on his land generally fail to produce any. We should be glad if anyone can supply the information requested.

— WE have received from Messrs. James Carter & Co. a bouquet of what they term their GIANT EMPRESS ANEMONE. They are truly gigantic forms and brilliant varieties of Anemone coronaria, and are strikingly beautiful. Several of the flowers are 4 inches in diameter, borne on stalks nearly a foot long and almost as thick as our penholder. The colours are varied and rich, ranging from white through the different shades of lavender to deep purple, and from pale red to glowing scarlet and velvety crimson. They are the finest single Anemones we have ever seen, and such flowers as these before us would be an acquisition even to the garden of an Empress.

— THE following ORCHIDS are now in flower in Mr. Smec's collection at Wallington:—Ada aurantiaca, Cattleya citrina, C. Mossiæ; Cymbidium aloifolium; Cypripedium barbatum, C. superba, C. nævium, C. Argus, C. cordatum, C. Boxalli; Cyrtopodium

Andersonianum; *Dendrobium Ajax*, *D. Pierardi*, *D. crassinode* *Barberianum*, *D. Devonianum*, *D. primulinum*, *D. transparens*; *Brassia verrucosa*, *Epidendrum crassifolium*, *Lycaste aromatica*, *Maxillaria Harrisoniæ*, *Mesospinidium vulcanicum*, *Masdevallia ochthoides*, *Maxillaria tenuifolium*; *Odontoglossum cordatum*, *O. vexillarium*, *O. citrosmum*, *O. citrosmum roseum*, *O. triumphans*, *O. Alexandræ*, *O. Rossi*; *Oncidium eoncolor*, *O. sphacellatum*, *O. cucullatum*, *O. cucullatum giganteum*; *Stanhopea tigrina*. Mr. Smee has only recently given special attention to Orchids, and is rapidly forming a good collection, the plants being undeniably well cultivated by Mr. Cummins. Mr. Smee is also conducting experiments in growing some of the plants on blocks coated with Stockholm tar, and so far with satisfactory results; but more time is needed for fully testing the advantages of the practice.

— IN two of the dells of the above interesting garden *TODEAS* have not only passed the winter safely, but are producing vigorous fronds. Each plant is protected with a square box, in which a pane of glass is fixed in a groove so as to fit closely yet be easily moveable. No additional shelter is given, and the plants are in excellent health.

— THE NORTHERN SHOW OF THE NATIONAL AURICULA SOCIETY, held in the Town Hall, Manchester, on the 2nd inst., although not so large as the southern exhibition, was highly meritorious. Mr. Bolton, Warrington, secured the chief prize in the class for six plants; Mr. Wilson of Halifax being first for four varieties, and Mr. Simonite for two plants. In the single-plant classes Mr. Pohlman, Halifax, had the premier green edge, Lancashire Hero, and the premier grey edge, Alex. Meiklejohn; Mr. Lord, Todmorden, staging the premier white edge, Acme, and Mr. Simonite the premier self, Mrs. Douglas. The premier Auricula in the Show could not be determined, the claims of Alex. Meiklejohn staged by Mr. Wilson, and Lancashire Hero by Mr. Barlow, being adjudged equal for that honour. The most successful exhibitors of Alpines were Messrs. Booth, Shaw, and Gorton, and of Polyanthus Messrs. Beswick and Barlow. This is all we are able to extract from a report that only reached us just as we were going to press. For the miscellaneous exhibits in the Town Hall the following awards were made:—First-class cultural certificates to Mr. Ryland for *Adiantum palmatum*, to Mr. Agnew for *Deutzia gracilis*, to Mr. Brockbank for *Iberis gibraltarica*, and to Mr. Perkins for cut *Pelargoniums*. First-class commendations were granted to Mr. Schloss for *Rudgea macrophylla*, to Mr. Rogerson for *Calceolarias*, and to Messrs. Standish and Rylands for groups of plants.

— A HEREFORDSHIRE CORRESPONDENT writes as follows on *FINOCHIO*:—"The introduction of the 'Finocchio' as a winter vegetable into this country would be very desirable, but unfortunately there is a difficulty in growing it. I have sowed seed of it several times at different periods of the year, but in many instances the plants ran to seed immediately. Perhaps the market gardeners would know how to overcome this difficulty. In Italy the *Finocchio* is grown as we grow *Celery*."

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on the 17th inst. at 7 P.M., the following papers will be read:—"On the Diurnal Variation of Wind and Weather in Relation to Isobaric Lines," by the Hon. Ralph Abercromby, F.M.S. "Mechanical Conditions of Storms, Hurricanes, and Cyclones," by W. F. Stanley, F.M.S., F.R.M.S.

— WRITING in "The Gardener," "F. W. B." observes:—"Every gardener knows, or thinks he knows, *PHALÆNOPSIS GRANDIFLORA*, but how few there are who can now boast of a specimen of the true old variety from Java. In habit and mode

of flowering it is quite distinct from the 'Bornean' form, and in every way—except perhaps the form of the individual flowers—it is far preferable. It has a better constitution, and so is hardier than are the Bornean varieties; indeed it may be grown alongside *P. Schilleriana*, while the Bornean plant absolutely requires a mean of at least 5° higher, and is not often happy even when it gets it! A strong plant of the Javanese variety will commence to bloom in March, and continue in flower until October. Easily known by its thick dark green leaves and dark green flower spikes, a plant of it even to look at is rarely to be found now-a-days!"

THE GALE OF APRIL 29TH.

THE terrible wind and rain storm of the 29th ult. is worthy of, and will doubtless meet with, notice in your columns. I do not ever remember seeing such devastation wrought amongst vegetation. In this district of Mid-Surrey no great damage has been done, and not many trees blown down, but the aspect of vegetation on the side from which the storm came is forlorn in the extreme. The Chestnut trees have suffered especially; so blackened and withered are the leaves and flowers on the storm side in all unsheltered places that it seems doubtful whether they can ever revive through the summer. The contrast between the storm-beaten and other side of trees is most remarkable. Even the bushes of Currant and Gooseberry bear considerable traces of damage, the very weeds and Nettles by the wayside are blackened. Some of the daily papers have spoken of severe frost coming after the storm. I observed nothing of the kind here; my lowest reading at the time being 35° and 36°, and am inclined to attribute all to the strange bitterness of the gale, and the cutting blast of hail during one portion of it.

A common inquiry at this time in the Rose articles is, "How does your garden grow?" It will be interesting to have noted what effect the excessive damaging of the present foliage will have on the coming blooms. My standards could hardly look worse, but then the few that came out of the winter of 1880-81 would naturally look miserable in May. In all sheltered places bloom buds are just opening, and I gathered yesterday (May 2nd), a very fair specimen of *T. Rubens* on a south-east wall. In general I should not say that the growth is quite what might have been looked for after so favourable a winter. Some newly planted varieties have died without any particular reason, especially, as I hear elsewhere, *A. K. Williams*, which is very disappointing in so fine a variety. The foliage in all exposed places is looking miserable in the extreme, but in more sheltered gardens the damage is much less serious. I have just had an opportunity of going over the model Rose garden of the well-known Reigate Vice-President of the National Rose Society. His two thousand plants look as if no unkind blast could ever have come nigh them; they are not too forward in spite of his end of February pruning, and look as healthy, both *H.P.'s* and *Teas*, as could be desired. There has been a strange dying-off just in one part of some newly planted on the *Manetti*, but the seedling *Briar* plants are all that could be wished by the fondest parent. Mr. Baker has also several beds of *Roses* on their own roots from his striking, which look as well, and, I am informed, give as good blooms as any of the others. The Reigate Rose Association have to regret his retirement from the place of President; he is succeeded by T. B. Haywood, Esq.—A. C.

WE have had three great gales here within five years. One October 14th, 1877; the second on the same day in 1881; and an equally severe one last Saturday, April 29th. Elms fell by hundreds in this district, many within a circle of a mile round this house. The larger fruit trees are much broken, and the blossom greatly damaged. Even the tops of my pyramids are stripped of leaves, or only black fragments remain. I fear the fruit crop will be much injured as well as lessened.—WILTSHIRE RECTOR.

QUEEN WASPS.

My first impressions on reading the remarks of "DUCKWING" (page 260) were that he was attempting a hoax. He is bound now, I think, to give us better data for his ideas (so opposed to received notions) than he has yet done. At present it seems to me we have only his own assertion, without the shadow of a proof. It needs more than this to upset the present received opinions—I had nearly written facts.

It is perfectly true that much less is known about wasps than

about bees, and that in the matter of the queens there is, as at present ascertained, a very great difference. It is, I presume, an established fact that all the workers of the wasp are killed by the first frost, whilst the worker bees are uninjured. The fact that the early worker wasps are so very small appears to favour this view, for I presume that the life of a worker wasp, like that of the worker bee, during the period of activity is very brief. The small early workers disappear as the season advances, and in their place we find workers nearly as large as the smaller queens. This, at any rate, seems to be a proof that the generally received notion is correct, that the queens in April and May are seekers for a spot where they may make themselves "a local habitation and a name." This spot, it is supposed, the queen works into a nest, in all the early labour of which both in obtaining the material and in the manufacture of the same royalty is unassisted. The queen having not only to make the nest, but also to obtain food for the earlier brood, it is natural to suppose that these shall be more poorly nourished, and, therefore, have smaller grubs, and consequently smaller perfect insects. My impression from watching the queens is that much of the time the queen wasps are considered to be in search of convenient situations for nests, the nest is already in being, and the queens are rather in search of food or materials, much of which is obtained from the stems of trees, especially the Pear and the Hawthorn. Moving up and down on the stems of both these trees they may continually be seen.

I must agree with Mr. Taylor "that every wasp appearing in spring is a fertilised queen," with this additional proviso, that the smaller queens are probably unfertilised, and, like the queen bee under similar conditions, drone-breeders solely. In saying this I do not advance that as a fact, I only imagine that this is the case, as Mons. Perrot, a friend of Huber's, observed that these smaller queens were only layers of drone eggs, and it is an ascertained fact in the hive and also the humble bee. If these are facts it follows that though we may allow the smaller queens to live, the larger should be destroyed, as the parents of future families.

There are many other conditions beyond our control that interfere with the formation of the colony, and which may make a very fruitful year as to queens very deficient in workers. Continued rain at the early formation of the nest destroys many by starvation and not a few by drowning. Cold may possibly assist also, as the bee tribe are very easily affected by it; but though very susceptible to cold, yet if warmed after apparent death for hours, they rally wonderfully, hence I hardly expect the cold to be as fatal as the wet.

Mr. Taylor gives us the statistics of eight years—1874 to 1881 inclusive; 1876 and 1881 appear altogether exceptional in the two extremes. I recollect nothing of 1876, but last year's weather was very favourable for their destruction in this locality; besides over four thousand additional were destroyed through the agency of our Cottage Garden Society. Within a mile or two of Warminster I heard of only one nest, and that was close to my garden. Along the sides of the railway embankments the navvies remarked that, where they were generally so plentiful, there was last year an almost complete absence. We thought, and I believe, that catching four thousand queens had not a little to do with this, and until I have some better proof that this is erroneous reasoning, in spite of "DUCKWING," I shall still believe it and act upon it.

Will "DUCKWING" kindly give us his opinion of wasp economy?
—Y. B. A. Z.

DESTROYING CRICKETS.

WITH cockroaches I have not been much troubled, but crickets, which I take to be of very similar habits and tastes, I have had to be at war with for twenty years, owing to a man bringing some in a match box and turning them up "for a lark" in an engine house where I am in the habit of starting many plants. It is especially useful for my Dahlias, which are placed in boxes containing about half a dozen roots each, and when about 3 inches high they are taken out to harden off, and then afterwards divided into single plants and planted out about the middle of May. This hint may be useful to cottagers.

As we had lived on amicable terms since last spring the crickets were allowed to have matters pretty much their own way, until I wanted to start the Dahlias a short time ago, when I could see it would be utterly useless to attempt it, as the place was swarming with them. The question was, What was to be done? I never use poison, or perhaps I might have stamped out the nuisance years ago. I took a couple of ordinary galvanised washing bowls and filled them about half full of water, to which was added about half a pint of cider; just above the liquid I smeared a ring of honey. This was my bait. The bowls were placed near their haunts and banked up to the rim with earth. I counted the contents of a

bowl on three occasions, and found they contained 106, 65, and 44 dead crickets, the result of one night's taking, besides hundreds of ants, &c. I also took a light at night, killing the crickets I found out on their foraging expeditions, and with this result—that it is now a rarity to see one, although I am aware there are a few left; but so far my plants are untouched. This, I think, is a simple, safe, and effective remedy, and costs little.—J. HIAM.

APPLE TREES FOR ORNAMENT.

LOOKING over a quarter of pyramidal Apples on the Paradise stocks I was particularly struck with the great beauty and wealth of blossom they presented. A few of them would be no mean addition to the shrubbery border, and would be well worth the trouble of an annual lifting to keep them compact and full of blooming spurs. The following were the most noticeable at this season:—Worcester Pearmain, delicate silvery white, with faint pink veins; Scarlet Nonpareil, blush veined with pink, shaded to white; Reinette de Caux, silvery white, reverse rose pink; Lady Henniker, flowers $1\frac{1}{2}$ inch over, petals broad, rosy white veined with rose, buds rich rose pink, very effective; Cox's Pomona, white and pale pink, large flower; Lord Derby, rich colour, bright China-Rose pink, buds of a deeper shade, very elegant; Calville Malingre, very loose, narrow, star-like petal, flowers very profusely. The great beauty of Apple blossom appears to lie in the lovely and perfect manner in which the unopened buds (which are generally darker in shade than expanded flowers) harmonise and blend, also to the way in which the clusters are set on the branches. This is seen in perfection on pyramidal trees, as in standards we cannot command a view of the upper surface. From present appearance I am inclined to think that the fruit trees will recover from the dreadful gale very shortly, as the mild moist weather is favourable to leafage, and the fruit does not appear to be battered or exhibit any tendency to fall off.—GEORGE BUNYARD, Maidstone.

CARBOLIC ACID AND WEEDS.

OBSERVING on page 348 a request for information upon the subject of destroying weeds with acids, I may state that I used carbolie acid about six weeks ago for the purpose of killing weeds on walks and it answered the purpose well. It was employed at the rate of a quarter of a pint to a gallon of water, using for the purpose an old water-can with a fine brass rose, mixing a canful at a time, taking care to wet every portion of the walk, but being careful to avoid injuring Box edgings or grass, as the acid will kill every plant it touches. Two gallons of carbolie acid sprinkled over 1000 yards of gravel walk killed all moss and weeds, rendering the walk as fresh as ever. I know nothing cheaper or more effectual.—H. T. J.]

In answer to your correspondent respecting the use of carbolie acid for destroying weeds on gravel walks, I may say in my present situation I have used it for the above purpose, but did not find it so destructive as I should wish, and in its place have substituted salt, which we find both effectual and cheaper. We obtain it for 15s. per ton; doubtless some may be able to obtain it even cheaper than that. In using it we always scatter the salt in the evening during dry weather, after which we sprinkle it with water to merely damp it, then run a stiff brush lightly over it to mix the salt more evenly. Using it in this way our paths have few weeds.—T. H.

ORCHIDS AT BROOMFIELD.

THIRTY or forty years since Orchid-growers were considerably less numerous than they are at the present time, for then not only were there fewer species introduced, but those that were in the country realised prices which placed them beyond the means of all but the wealthy. In consequence collections were not then to be found as they are now in scores of villa gardens around the metropolis and large towns of the kingdom, though probably a greater proportion of really extensive collections were formed, and these gained no mean degree of fame in the horticultural world. Orchid culture was in its early days invested with a kind of mysterious importance, which was considered beyond an ordinary gardener's knowledge, and it was thought the secret of success was possessed only by a favoured few who had made them a life-long study. Though much has been done to remove this erroneous impression, it is regrettable to observe that some experienced orchidists are endeavouring to perpetuate it by enveloping their culture in a multiplicity of intricate details that are quite formidable to beginners. It was this supposed extreme

difficulty of culture combined with the expense which so long retarded the progress of Orchids in public favour, and much credit is due to those who were amongst the first to show that with ordinary care and attention Orchids could be as easily and satisfactorily grown as many other plants. This difficulty being overcome, the trade in the members of the most varied and beautiful family of plants has increased greatly, with the corresponding result that except for the newest and rarest there has been a gradual reduction in price, and now some beautiful species can be purchased for a less number of shillings than they could be at one time for pounds. Still, too, the trade seems to be increasing for the annual importations, as can be seen by the numerous sales in London, are becoming enormous.

The gardens at The Scravels, Broomfield, Chelmsford, possess an historic as well as a present interest to orchidists, for their owner, Robert Warner, Esq., was one of the first who materially aided in popularising Orchids, and for many years his choice and magnificent specimens were the admiration of all who visited the leading metropolitan and provincial exhibitions. During the past thirty years no expense or attention has been spared to obtain the most beautiful species and varieties and to grow them in a thoroughly satisfactory manner. That both these objects have been fully accomplished is well known to all interested in such plants. In the early days of his experience special attention was given to those exquisitely beautiful members of the family, the Moth Orchids, which were then rare in cultivation, and considered to be amongst the most difficult to grow. So judiciously, however, were these Phalænopsids attended at Broomfield, that some of the finest specimens in the country were soon obtained, which produced unsurpassed displays when in flower, and first really showed the valuable qualities of these plants. One advantage, it is true, they enjoyed which growers in the vicinity of London do not possess—namely, freedom from those poisonous smoky fogs which work such havoc among these delicate flowers, and this is a point of considerable importance, for no cultural care can obviate the evils arising from metropolitan fogs.

Having effected such good work with the Phalænopsids, Mr. R. Warner next devoted his attention to those sumptuous Orchids the Cattleyas, and with similarly creditable results, for they extended the fame of their owner not only in England but in Europe generally as one of the foremost orchidists of the age. Visitors to Broomfield a dozen years ago or less will ever remember the magnificent vigorous specimens of these gorgeous plants that then distinguished the collection, and some dozens of medals testify to the opinions entertained by them at all the various horticultural exhibitions of note both in England and at Brussels and St. Petersburg, and I am informed that the first Orchids in bloom exhibited on the continent from this country were those from this collection. Vandas, too, were at that time great favourites, and examples of all the best species and varieties were produced equally as creditable to their cultivators as those previously mentioned, and now as a continuation of this excellent system *Odontoglossums* and *Masdevallias* are the favoured *protégées*. One reason that the two latter have been specially selected in recent years is, that Mr. Warner has found his delicate health prevents him frequenting the houses where such high temperatures as those needed by tropical Orchids are maintained; and though he cannot enjoy his older favourites any longer, he has amply compensated himself for the loss of this privilege by forming a magnificent collection of cool-house Orchids.

Of all the Orchids it appears that those which thrive in a moderately cool temperature are the most likely to gain the widest and most lasting popularity, for they have much to recommend them which others have not. In the first place, the expense of culture is much less; secondly, the majority of the commoner forms are cheap; and lastly, their beauty can be enjoyed without enduring the heat and moisture of the East Indian or Cattleya house. The two genera which Mr. Warner has selected for special attention contain some of the most handsome of the cool-house Orchids, and therefore good service is again being rendered to the horticultural world by the attempts being made to prove the value, beauty, and ready adaptability to cultural requirements of really useful plants. It has long been the rule in this garden to select with great care all the best and most distinct varieties obtainable of the leading species, and not merely to form a collection containing a large number of species regardless of their qualities in a horticultural point of view. The latter is justly regarded as pertaining more to the object of a botanic garden than a private establishment, and perhaps no family of ornamental plants could be named in which species exhibit such a range of variation in themselves as the Orchids. In general appearance the difference between a good variety and the poorest forms or original type in one species

is often greater than between allied but distinct species, and it is this variability which renders the work of selection so important and valuable.

At Broomfield one species alone admirably illustrates the benefits derivable from judiciously selecting promising varieties and discarding those deficient in the qualities esteemed by an Orchid fancier. Of *Odontoglossum crispum*, or *O. Alexandræ*, as it is very generally known, twelve thousand plants are grown, mostly specimens of moderate size, all extremely healthy, and including some of the most beautiful varieties which have been introduced in recent years. Several houses are more or less occupied with these, but in one open-roofed structure about 60 feet in length both the central stage and side shelves were chiefly occupied with *Odontoglossums*, among which *O. Alexandræ* and its varieties largely predominated, some hundreds of spikes gracefully arching downwards and presenting an unrivalled display. The admirable qualities of this superb species could not be seen to better advantage, and the high favour in which it stands with growers is well merited. Some varieties have pure white semi-translucent flowers, others have them slightly suffused with a delicate rosy tint, and others still are variously blotched and barred with brown, the lip being relieved by a dash of clear pale yellow. In all the best varieties the excellent form and substance of the flowers are very striking, the petals and sepals being broad, the outline symmetrical, and the flower generally what the orchidist technically terms "well filled up"—that is, there are no wide spaces between the divisions of the bloom. The pure white varieties were the most noteworthy, and one very highly treasured form, with flowers nearly 4 inches in diameter, the petals being each $1\frac{1}{2}$ inch across with neatly cut margins, was extremely handsome, though there are plants in the collection which have produced flowers $4\frac{1}{2}$ inches in diameter. Size alone is not a recommendation in an Orchid flower; but when that is combined with exquisite form and a crystal-like substance, the blooms being placed closely upon the spike without being crowded, the most fantastical person, if possessing an appreciation of beauty, could not prefer the loose "original types" to such *Alexandræ*s as those at Broomfield. Of the spotted forms *O. A. Warneri* is the best, this having pure white petals with neatly crisped edges; the sepals have a few very large rich brown spots, the lip being yellow at the base and barred transversely with brown. The flowers are of similarly good form to the others mentioned, and the first time it was shown at Kensington—namely, on April 24th, 1869, it attracted much attention. Between these two types there are innumerable gradations all more or less beautiful, and in some instances sufficiently distinct to merit names, though considerable care is exercised to avoid multiplying the already too numerous varietal titles.

Another well-known and lovely species, *O. cirrhosum*, is represented by scarcely fewer varieties than the preceding, but in this case there is one noticeable difference, for the largest flowers are by no means the best either in form or colouring. For example, one which may be aptly termed *giganteum* has flowers 7 inches in diameter from tip to tip of the opposite sepals, and the basal portion of the petals is fully an inch broad. In appearance the flower is extraordinary, but it possesses no refinement or neatness, and the spots are very light-coloured—a purplish tint that is much less pleasing than the rich chocolate of the smaller forms. Of the latter some have blooms about 5 inches across, and in few instances exceeding 6 inches; yet the more regular breadth of the sepals and petals, the clear ground, and the rich spots render them far more attractive. In many other species of this large genus a similar range of choice varieties has been obtained. *O. Halli* is represented by numerous plants with flowers of diverse form and colouring; some have the bars and blotches nearly black, in others they are of a light pleasing brown hue; while one, the *O. Halli leucoglossum*, has the lip quite white—a notable contrast with the darker portions of the flower. *O. Pescatorei*, *O. Andersonianum*, *O. prionopetalum*, *O. luteo-purpureum*, the charming *O. Rossi majus*, the delicately pretty *O. Cervantesi decorum*, the rich yellow and brown *O. triumphans* and others in abundance, all contribute to the beauty and diversity of the display while exemplifying the skill and care exercised in the selection.

In striking contrast to the *Odontoglossums* in the same house are superb examples of several *Masdevallias*, and the richness of their tints affords a most agreeable addition to the colours of the others. Prominent amongst these is one which is most appropriately named *M. imperialis*, for it most certainly is an imperial flower—the grandest of the *Harryana* type which we have seen. The sepals are broadly elliptical at the lower portion, $1\frac{1}{4}$ inch in diameter, about 2 inches long, and the flower is fully $2\frac{3}{4}$ inches in breadth laterally. The colour is a most intensely rich crimson-magenta hue, and when seen as the plant was placed in the house

near some of the white varieties of *O. Alexandræ*, the depth of the tint was very noticeable. At the last meeting of the Royal Horticultural Society this plant was shown by Mr. Warner, and greatly admired by the visitors, a first class certificate being justly awarded for it. Another very pretty but quite distinct variety is *M. roseo-violacea*, which has light rosy flowers very freely produced and affording a new shade in the *Masdevallias*. *M. reflexa* has flowers of a rich crimson colour, but they are chiefly remarkable for the character indicated by the name—*i.e.*, the margins of the

sepals are much folded back or revolute, which is an almost preferable term to *reflexa*. *M. Whitbourniana* of the same type has large deep crimson flowers, the tails of the sepals being strangely curved so as to cross each other, a constant character which readily distinguishes it from its near relatives. Numerous other forms of the *Harryana* or *Lindeni* type are represented, and one fine batch of imported plants now in excellent health gives promise of still further novelties, as none has at present flowered. The pretty diminutive purple-dotted *M. Shuttleworthi* is abundant and flower-



Fig. 77.—NARCISSUSES.—1, BACKHOUSEI; 2, ALBICANS; 3, NELSONI; 4, BARRI CONSPICUUS. (See page 362.)

ing admirably in the small pots which seems to suit it so well, and, with many others too numerous to particularise, render the collection quite unique in its way.

As might be supposed from the fact that Mr. Warner is the oldest amateur grower of Orchids, the houses are numerous, nine or more being devoted to them, but the *Odontogloss* and the *Masdevallias* form by far the largest portion of the collection. Next to these the *Vandas* are noteworthy both for the size of

the specimens and the choiceness of the varieties. *Cattleyas* and *Cypripediums* also receive much attention, amongst the latter being a fine stock of the beautiful variety of *C. barbatum* Warneri, which in the form of the flower and warmth of tints is unsurpassed. These, with some *Oncidium*s and others, deserve notice at greater length, but in all alike the same system has been adopted—namely, gradually discarding the worthless forms and retaining only the best. With the exception of a few

Vandas, Cattleyas, and Masdevallias, no large specimens are grown as in former days, but useful plants of moderate size, and mostly in small pots, are now the rule throughout the establishment.

In the culture of Odontoglossums and other cool-house Orchids the two chief points that are especially observed are providing a constantly liberal, yet not excessive, supply of water both to the plants and in the atmosphere, and never allowing the temperature to rise too high, especially in winter, when 40° is considered a safe minimum for all the coolest forms, and some have been wintered in a frame with no losses except where the lights were disturbed by the wind. There is no doubt that failures with this section of Orchids are often due to want of attention to these particulars, too much heat and insufficient moisture rendering the plants unhealthy, and subjecting them to the attacks of thrips and other insect pests. In what may be termed the "growing" house at Broomfield the plants are extremely healthy and clean, and it is worthy of remark they are all placed on thin sheets of iron raised about 6 inches above the level of the bed. These iron stages are an eighth of an inch or a little more in thickness, and are grooved diagonally upon the upper surface, these grooves serving the double purpose of conveying the water from the base of the pots and yet holding sufficient moisture to ensure a continual cool humidity round the plants. These stages Mr. Warner has had in use for some years, and he speaks very highly of them, one great advantage being durability, and they are more easily cleaned than slate. A very useful "Orchid bath" is also used for dipping baskets or pans in. This is an ordinary hollow cylinder (like the body of a watering can) on wheels, with a handle attached to the front, by which it can be pulled along the paths of the house, and the plants dipped in succession without having to convey them any distance. A similar contrivance is employed in other establishments—in fact, something of the kind is almost indispensable where the baskets or blocks are numerous.

These few notes of a highly valuable and interesting collection of Orchids only indicate briefly the chief features, but they will serve to show that Mr. Warner has consistently followed an excellent method in forming his collections, and that, as with previous favourites, those now receiving attention are being thoroughly and satisfactorily studied. The healthy condition of the plants generally, it should be added, affords ample testimony as to the care they receive from the gardener, Mr. J. Jarritt, who has had much experience with Orchids.—L. CASTLE.

TOM PUTT APPLE—THE LATE STORM.

OTHER readers of the *Journal of Horticulture* besides myself will, I am sure, feel indebted to "WILTSHIRE RECTOR" for the information which he has courteously given in reply to my inquiry about the Apple Tom Putt. Possessing and valuing the volumes of the *Journal* for several years past, I have, at the Rector's instance, referred to the very remarkable classification of Apples by Dr. Hogg in the number for March 9, 1876. The four pages devoted to this purpose are, if I may venture to say so, a monument of patient industry and of analytical and combining power of a high order. The essay is an admirable endeavour to raise the subject of pomology to the level, in precision and dignity, of similar systems of classification in botany and kindred sciences. Many readers of the *Journal* may, like myself, have overlooked the fact of its existence. To some such the careful study of it may be the means of curtailing the very numerous appeals now made to the Editor for aid in the diagnosis of an Apple in search of a name.

It is curious to see, looking at past volumes, how irrepressible is the subject of Apples. It is always coming to the front, and in a very recent number of the *Journal* is an appeal for further contributions on the subject.

It was my intention to have offered a few notes on the dessert Apples that have succeeded best here, in continuation of a recent communication about culinary Apples; but I prefer to postpone them, in order to place on record some of the effects in this locality of the hurricane of south-west wind during the afternoon and evening of the 29th of April, because it may truly be said that, if such storms were to happen many times in the course of a life, they would render it simply impossible to grow fruit in the open air in places to which the wind had access.

To give an idea of the force of this wind, I saw a strong man struggling in vain to walk a step against it. I saw nothing of the numerous trees uprooted, particularly in the open lower country, because this is no unusual thing; but the disastrous effects are to be observed chiefly in the foliage of deciduous trees and shrubs of all kinds, with the exception, perhaps, of the Beech and the Ash, the latter with us not being yet in leaf. The hardy Oak, the

Elder, the Hawthorn, the Privet, the young shoots of Laurel, the common bushes of the hedgerows, have their leaves and young shoots more or less completely blackened and destroyed.

All the exposed branches of fruit trees, whether standard, pyramid, bush, cordon, or espalier, that happened to be in leaf, are affected, and the splendid prospect of a fruitful season is at an end. Trees on the west and south sides of walls have not escaped, those only being intact that lie on the north or east sides.

Pears, and Plums, and early Apples have suffered most. Damson trees that were one day covered with fruit and green leaves present now the aspect of trees that had been severed from their roots and scorched.

The leaves and shoots of the affected trees are turned black and shrivelled, and made brittle as if they had been burned. And, indeed, they have undergone the preliminary step in combustion as effectually as if done by fire. The leaves have not only been physically torn and bruised, but the large amount of water in their composition has been driven off by the violent current of air very much as it would have been in the early stage of burning.

One of our men walking along the country near at hand says the leaves on the trees and hedgerows in colour and appearance look like dried tea leaves, and the analogy is obvious.

Among vegetables, the early crop of Ringleader Peas just coming into blossom, although protected by sticks, is greatly damaged, and the early Mazagan Bean has many of its leaves blackened. I fear we may expect to hear sad accounts of destruction from the nurseries.

I will conclude by saying that I have observed no instance, happily, of any injury to our Coniferous trees, of which we have a considerable variety.—A SURREY PHYSICIAN.

ROYAL HORTICULTURAL SOCIETY.

MAY 9TH.

THIS meeting was not characterised by exhibits of more than ordinary importance, and the new plants were not quite so largely represented as usual. The groups of plants were arranged in the western arcade owing to the preparations for a fancy bazaar in the conservatory. Messrs. W. Paul's Roses, Mr. Salter's Calceolarias, and the collections from Chiswick were of excellent quality, and formed the bulk of the display.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Messrs. Veitch & Sons sent heads of Broccoli named Model, which were good, but not superior to other varieties. Mr. S. Ledsham, Tarvin Road, Chester, again exhibited his "Latest of All" Broccoli, which is a very handsome and well-protected Broccoli, and received a first-class certificate. Mr. R. Draper, The Gardens, Seaham Hall, Sunderland, sent a new Broccoli, "Draper's Selected," and a Cucumber named Draper's Prolific, both of which, though good, had no special merit. J. Southgate, Esq., Selborne, sent a seedling Cucumber which was passed. Messrs. Hurst & Son sent specimens of a variegated Broccoli of good quality, which was highly approved by the Committee as a decorative plant. Mr. T. Miles, Wycombe Abbey, sent two samples of Winter Spinach, which had been sown on the same date, one the common Prickly, and the other a new sort sent by Mr. Turner of Slough to show the distinct character of the latter, and its property of continuing the supply after the former has run to seed. The leaves are very large and thick, and the Committee were of opinion that it is the Monstruosa Viroflay. Mr. Divers, gardener, Wierton, Maidstone, sent a Rhubarb remarkable for its deep red colour throughout the leafstalk called Salt's Crimson Perfection, which was highly approved, and was ordered to be included in the trial of Rhubarb which is to be made next season at Chiswick. Mr. R. Campbell, The Gardens, Oakmere Hill, Northwich, sent specimens of Buda Kale called Asparagus Kale. Mr. Boias, gardener to H. Chandos Pole, Esq., Hopton, Wirksworth, sent fruit of President Strawberry of good size, but damaged in the carriage. Mr. Divers of Wierton sent specimens of Golden Knob, Gooseberry, Northern Greening, Hanwell Souring, and French Crab Apples, to which a letter of thanks was awarded.

FLORAL COMMITTEE.—Rev. H. Harpur Crewe in the chair. Messrs. J. Veitch & Son, Chelsea, had a group of new and choice plants, including specimens of the floriferous yellow-flowered Coronilla Emerus, which were very pretty; Philadelphus coronarius var. tomentosus, bearing a large number of white flowers; Vanda teres, flowering well; Pratia angulata, very neat, dwarf, with abundant white flowers. Fine baskets of Azalea pontica altaclerensis, and Eurybia Gunnii were also shown with several plants that were certificated. Sir Trevor Lawrence, Bart., Burford Lodge, Dorking (Orchid-grower, Mr. Spyers), sent several choice Orchids. Oncidium teretifolium, with large panicles of bright yellow flowers; Dendrobium Bensonae xanthinum, a pretty variety with white sepals and petals and an orange-blotched lip. Masdevallia rosea was also shown in flower, the blooms being small and not very attractive. A vote of thanks was accorded to Mr. C. Green, The Gardens, Pendell Court, Betchingley, for flowers of Sobralia macrantha and Dendrobium thyrsiflorum. A similar award was also granted to Messrs. H. Cannell & Sons, Swanley,

Kent, for flowers of *Mimulus* and *Zonal Pelargoniums*, very fine. J. W. Perkins, Esq., Woodfield, Beckenham, Kent, sent a collection of Pansy blooms. A vote of thanks was accorded to Mr. G. Duffield, Bramford Lodge, Winchmore Hill, for blooms of Carnations. Messrs. W. Paul & Son, Waltham Cross, sent several new Roses, for one of which a certificate was awarded, but in the opinion of many visitors the best of those shown was Queen of Queens, a soft pink-coloured variety, with flowers of great size and substance.

In the western arcade Messrs. J. Veitch & Sons, Chelsea, exhibited an interesting group of Japanese Maples, including a large number of most distinct forms, green, yellow, and red. *Acer polymorphum*, *latifolium*, *atropurpureum*, *dissectum*, *sanguineum*, and *elegans purpureum* were the best of the red-leaved form. *A. polymorphum flavescens* and *japonicum aureum* were the best with yellow foliage, the most elegant green forms being *A. polymorphum septemlobum japonicum*, *linearilobum*, *microphyllum*, and *palmatifidum*. A silver Flora medal was awarded. A silver-gilt medal was accorded to Messrs. Wm. Paul & Son, Waltham Cross, for a handsome and extensive group of Roses in pots, including about fifty large and small specimens. Especially fine examples of Juno, La France, Paul Verdier, Paul Neron, and Edward Morren. Of the smaller plants, all of which were exceedingly healthy and bearing large richly coloured flowers, were Star of Waltham, Marie Baumann, Crown Prince, Mdle. Marie Rady, Mabel Morrison, Princess Beatrice, and Etienne Levet. Six boxes of Rose blooms were also staged, one lot of three dozen Magna Charta blooms being very good. Paul Verdier, Baroness Rothschild, Duchess of Bedford, Marie Baumann, and Crown Prince were also similarly noteworthy for their fine substance. A marginal row of *Adiantums* formed an agreeable finish to the group. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, was awarded a silver Flora medal for a fine collection of *Calceolarias* including about a hundred plants, mostly in excellent condition, the flowers of good size, form, and colour; the heads large, and the foliage fresh and vigorous.

Messrs. Kelway & Son, Langport, sent a large collection of single and double *Pyrethrum* representing forty or fifty varieties, all good in form and colour. The best of the doubles were the following:—*Jeanette*, pure white, large; *Nemesis*, rosy pink, full; *Sefton*, rich rosy crimson; Mdle. *Benary*, very delicate pink, shading to white; *Cleopatra*, white, with a yellowish centre; and *Princess Charlotte*, pale mauve, very delicate. Of the singles the best were *Perilla*, rich rose crimson; *Valeria*, pinkish white, large; *Demo*, rose; and *Dyris*, pure white. A silver Banksian medal was awarded for this collection. Mr. W. Rumsey, Waltham Cross, contributed six boxes of Roses and hardy Azaleas. Amongst the former Safrano, Alfred Colomb, Madame Victor Verdier, Isabella Sprunt, Duchess de Vallombrosa, and Marie Van Houtte were especially noteworthy. A silver Banksian medal was awarded. Mr. B. S. Williams, Upper Holloway, had a small group of plants, a large specimen of the winter Bouvardia-like *Gloneria jasminiflora* being noteworthy. *Hydrangea paniculata grandiflora*, *Anthurium Schertzerianum giganteum*, and plants of *Reseda odorata prolifera alba*, with several excellent *Amaryllises*, were particularly notable. Three very handsome groups were sent from Chiswick, and constituted a large portion of the display in the western arcade. Double Stocks, Cape Pelargoniums, *Calceolarias*, *Gloxinias*, and Azaleas were largely represented by well-grown plants. Specimens of Rollinson's and Scarlet Unique were very noticeable, and plants of the white-flowered *Saxifraga nepalensis* were abundant, with the large-flowered *Saxifraga Wallacei*, one group comprising Palms, Azaleas, *Obrysanthemum frutescens*, *Gloxinias*, *Spiræas*, Ferns, and edging of *Selaginellas*, the plants of *Saxifraga nepalensis* showing particularly well. The *Calceolarias* were of good habit, with large heads of richly coloured flowers.

First-class certificates were awarded for the following plants:—

Azalea rubiflora fl.-pl. (Veitch).—This is a very distinct Azalea from Japan, somewhat resembling in foliage and habit the well-known *A. pontica*, but quite distinct in the flowers. The leaves are elliptical, 2 or 3 inches long, and slightly tomentose. The flowers are 3 inches or more in diameter, very full and of a rosy purple shade, the lower part of the petals near the centre of the flower being dotted with rich red.

Pescatorea Lehmanni (Sir Trevor Lawrence, Bart.).—A beautiful Orchid with large flowers, the sepals being oval, white, faintly tinged and streaked with purple towards the apex; the petals are similar in form, but streaked longitudinally from point to base with bright purple on a white ground.

Rhododendron Fortunei.—Flowers of this were exhibited by Mr. G. Aslett, Warren Wood, Hatfield. The flowers are 3 or 4 inches in diameter, spreading and shallow, of a pale rose tint and extremely fragrant. They were slightly drooping, eight or nine in a rather loose cluster.

Carnation Howard (Howard).—This was certificated as "a decorative variety," being a really handsome Carnation with full well-formed deep scarlet flowers, which are produced very freely.

Davallia Griffithiana (Howard).—A beautiful *Davallia* with finely divided very dark green fronds. It is an elegant and distinct Fern of good constitution.

Rose Ulrich Brunner, fils (W. Paul & Son).—A Hybrid Perpetual Rose of a fine bright crimson scarlet colour, but rather loose in form. A second-class certificate was awarded for it.

Muscaria armeniacum (Rev. H. Harpur Crewe).—A pretty Grape Hyacinth, with compact spikes of small bright blue flowers.

Oncidium teretifolium (Sir Trevor Lawrence, Bart.).—One of the most curious *Oncidiums* as regards the form of the foliage, which resembles some of the *Sansevieras*, only much smaller, and one of the prettiest in the flowers. The latter have brownish sepals and petals with bright yellow lips, and are borne in dense panicles.

SCIENTIFIC COMMITTEE.—*Rhododendrons*.—Mr. Mangles exhibited some interesting species and hybrids as follows:—*R. nilagiricum* ("Bot. Mag.", 4381), where it is stated wrongly to have come from Nepal, being a figure of a pale pink *Rhododendron*, and which is undoubtedly *R. Campbellæ*, which comes from Nepal. *R. Fortunei*, remarkable for its seven petals and usually fourteen stamens. It is pink with corrugated petals and yellow centre; it has no spots, and is regular. *R. bigener*, the original hybrid of Dean Herbert, between *R. maximum* crossed with *Azalea viscosa*. It has glaucous foliage, pink corolla with corrugated edges. *R. californicum* ("Bot. Mag.", 4863), said by Professor A. Gray not to stand the eastern side of America, but has proved to be hardy with Mr. Mangles. *R. calophyllum*, a true species from Bootan, white, sweet-scented. It produces many varieties. *R. Edgeworthii*, which is an epiphyte, with leaves rugose above and tomentose below. It is the parent of many beautiful kinds. *R. blandfordiæflorum*, a most remarkable form from Sikkim, resembling the flowers of the genus *Blandfordia*. It bears short tubular and scarlet corollas. A species received from H. Hudson, Esq., near Cork, apparently resembling both *R. Roylei* and *R. cinnabarinum*.

Larches Attacked by Larvæ.—Sir J. D. Hooker, alluding to the report of Mr. McLachlan read at the last meeting, who considered the affection to be local and transitory, remarked that he had received communication to the effect of whole trees had been stripped of their foliage, and that the disease was more extensive than had been supposed.

Fungus in Dilute Sulphuric Acid.—Mr. G. W. Smith exhibited a specimen of the Vinegar Fungus, *Penicillium crustaceum*, growing in dilute sulphuric acid. Sir J. Hooker suggested it should be ascertained what nitrogenous substance was present in the acid, as the acid alone could not support life.

Proliferous Mushroom.—He also exhibited a specimen in which one pileus was inverted and adherent to the summit of a Mushroom growing ordinarily.

Foliage Injured by the Gale.—Dr. M. T. Masters exhibited specimens of leaves injured in various ways by the late severe gale, which, by destroying the growing parts, showed at a glance how the leaves, &c., were developing. The question was raised whether a generally received idea of salt being the cause was true; but it was thought that, except in certain localities, the destruction was due to the duration and the coldness of the gale. Mr. Mangles observed that Beeches withstood the blast much better than Oaks.

Plants Exhibited.—Rev. H. H. Crewe exhibited *Muscari armeniacum*, a species believed to come from Trebizonde; a species of *Scilla* from the Escorial Mountains, the old but little known white Persian Lilac, and *Pæonia Whitmanniana*. Mr. Artron exhibited an *Orchis*, which was referred to Kew for identification.

LECTURE.—The Rev. George Henslow took Maples as the subject of his lecture, as Messrs. Veitch exhibited a fine series of new forms from Japan remarkable for their coloured and variously dissected foliage. He first called attention to the fact that Maples abounded in the Miocene epoch, nineteen species having been found fossil at Onnigen near Lake Constance. They were even attacked by a fungoid disease much resembling the *Rhytisma acerinum*, which forms black spots on the Sycamore. Maples were well known to the ancients for the value of their wood. Theophrastus, Virgil, and Ovid often alluded to the markings on the wood, for which it was highly prized as it is now.

Maples are found in Europe, North America, North India, and Japan. Of the European the common Maple (*Acer campestre*, L.) is a well-known British shrub or small tree, the wood of which is valuable for cabinet work, and makes one of the best charcoals. *A. pseudo-Platanus*, L. (the Sycamore), has wood likewise valuable, while the knotted roots are used for inlaying, &c. The sap has been made into sugar and wine in the West Highlands of Scotland. Of American species, *A. saccharinum*, L. (the Rock, Sugar, or Bird's-eye Maple) is one of the most important. It was introduced here in 1735. The timber is valuable and used instead of oak where the latter is scarce. The fibres sometimes show peculiar arrangements, being undulated like those of the "Curled Maple" (*A. rubrum*, L., the Red-flowering or Scarlet Maple), or in spots, which gives the name of Bird's-eye. It forms excellent fuel, and the ashes are rich in potash. Sugar is extracted from the sap by boiling, the flow of sap being peculiarly sensitive to climatic conditions (see a paper by Mr. G. Maw in *Gardeners' Chronicle*, 1878, p. 137). Of the Japanese Maples lately introduced by Mr. Veitch, *Acer palmatum* var. *polymorphum* is the most important, as being remarkable for the great variety in the forms and colour of the leaves. It was originally introduced in 1822, but for the beautiful and delicate-cut-leaved new forms we are indebted to Mr. J. G. Veitch and Mr. J. Maries. Their names *ampelopsifolium*, *atropurpureum*, *dissectum*, &c., well describe their different peculiarities. Another species, *Acer*

distylum, as well as *A. carpinifolium*, both from Japan, are curious for the leaves being without lobes, the usual number of lobes varying from three to seven. As the first leaves developed on seedling plants (*e.g.* Sycamore) are without lobes, it represents a primitive character, while the five and seven lobes, obtained by later-developed leaves and characteristic of many species, would seem to be later-developed forms; the three-lobed *A. trilobatum* having been particularly characteristic of the Miocene epoch.

Several of the beautiful forms were exhibited by Mr. Veitch, which were introduced by Mr. Maries, but have not yet received distinctive names; as also some curious instances of Japanese grafting, where several varieties of Maples were growing on the same stem.

BLUE-FLOWERED SHAMROCK.

(*PAROCHÆTUS COMMUNIS*.)

A GRACEFUL plant of trailing Trefoil-like habit, admirably adapted for planting out on sheltered rockwork in May in a position where it may droop over a mossy stove in a natural way



Fig. 78.—*Parochætus communis*.

and display its pretty little Pea-like flowers. It is by no means new, and by no means too plentiful in cultivation, nor is it quite hardy except in very mild climates near the sea; but, as before pointed out, it is well worth preserving in a cool house during the winter, giving it a suitable place outside as soon as all danger from frost has passed away. As a basket plant in a cool greenhouse it is most charming, its trailing shoots depending, as shown in our sketch, and bearing a profusion of turquoise-blue flowers, which remind one of those of the common Chick Pea (*Lathyrus sativus*), but are green, brighter, and more lovely in colouring. Readily propagated by division it deserves a place in all gardens. It is a native of the Himalayas.—D.

LABELS.

HAVING seen much discussion in the Journal of late relative to the merits of different plant labels, and having tried various kinds for borders, I can strongly recommend those I send to you as the cheapest and most serviceable I ever used. I have taken them fresh from the border. To make them serviceable,

after writing the names they should have two or even three coats of copal varnish, and one every spring, and not less than two years without another coat. Those I send have been a little more than a year outside, exposed to all weathers. The one with the two holes for the wire, decidedly the best way of mounting, had its second coat some few weeks ago; the one with one hole has not yet had its spring coat. You can therefore judge as to their merits. The size of wire is what I have always used for these now for some little time, and answers perfectly as to strength. They are cut in lengths of 13 inches, and I have never known them thrown out of the ground in all the severe winters we have passed through. The label is merely a preparation of brown paper (best colour of all, as they are not too conspicuous on the border where there are many of them), made to order for me by Messrs. Blake and Mackenzie. These are cheap and very durable when treated as recommended, and are far superior to their original patent green labels, which I have quite discontinued using as not durable and the colour objectionable.

I may take this opportunity of mentioning that I have had in use for the last fifteen or sixteen years a similar label (a plan of my own), almost precisely similar to the Blair Drummond one described at page 308, with the only difference that I have one wire instead of two, which I find quite sufficient. These are used specially for Conifers, are quite fresh and legible, though they have never been with paint or varnish since the day they were put in. The letters are of black paint on a cream-coloured ground. The labels are lettered according to the bed, and numbered from a particular point, so that in digging they can never go wrong. The writing on both sides I consider an advantage. After writing the names with common ink I think they are better not to be varnished too soon, but to be exposed to the weather for three or four weeks frost on the border.—D. H.

[The labels submitted to us are oval in form, with a rounded projection on the upper margin, through which the wire is passed in the same manner as is shown in the figure on page 236. They appear durable, and the spring coat of varnish is decidedly advantageous.]

HARDY PLANTS.

I THINK I hear someone say, What beauty is there in a Daffodil? Not much, perhaps, individually, but when seen as they were here about a month ago they would have thought differently. We have a border on each side of a gravel path edged with Box; on each side of that for 100 yards are large patches of Daffodils, which, when seen from either end, have the appearance of a broad band. Their beauty is now gone, but patches of East Lothian Stock, *Alyssum saxatile*, *Arabis verna*, *Omphalodes verna*, and *Anemones* are becoming beautiful, and a grand effect will be produced by the *Pæonies*, of which the buds are just bursting. I am a great lover of a mixed flower garden, and here I in a measure am gratified, for with borders about 600 yards long and 2 yards wide devoted to herbaceous plants there are facilities for growing a large collection; but at present the varieties or species are few, but I hope in course of time to make the collection unique, especially with *Phloxes*, *Asters*, *Delphiniums*, *Campanulas*, and *Statice*s. There is always something fresh springing up in a mixed herbaceous border, and many admirably suited for cutting for decorative purposes. "D., Deal," whose opinion on herbaceous plants I fully endorse, would, I am sure, be delighted with the appearance of these borders when in their full beauty.—J. GADD, *Belhus Park*.

SINGLE DAHLIAS.

LAST year, when "SINGLE-HANDED" ventured to place the claims of single flowers above those of the double forms, he caused quite a flutter of excitement in various quarters, but no serious results followed. As regards the popularity of single Dahlias your correspondent was undoubtedly right. These flowers will be in the ascendant this season, and those who wish to be in the fashion must plant them in their gardens. It is simply marvellous to note the rapid increase in varieties of these flowers. Five years ago there were not more than five varieties named in catalogues, if so many, whereas now there are nearly twenty times that number in Mr. Ware's catalogue, and if anyone will visit the Hale Farm Nurseries they will be astounded to see the thousands of plants that it is necessary to provide to meet the demand; indeed it is quite impossible, in respect of some of the varieties, to execute the orders for them. This is probably the same in other places, therefore those who desire to plant single Dahlias will not only find it to their advantage to order plants quickly, but also give the vendors the option of making a selection. It is of little

use recommending varieties under these circumstances, but a reminder about planting these very popular and beautiful decorative varieties will not be inappropriate on the eve of the planting season. I saw many things at Tottenham worth mention, but nothing so impressed me as the enormous quantity of single Dahlias, and I hasten to make a note of the circumstance.—VISITOR.

HERBACEOUS PLANTS.

NOT a word will I write to disparage the lover of the gay parterre. Those that prefer the three or four months' blaze of vivid colours, or choose to work out the design of some elaborate carpet bed, are fully entitled to that pleasure; but the spring flowers and spring bedding are my favourites. It has always been one of my chief pleasures to spend a few hours at different seasons of the year among our hardy plants in such collections as are to be seen at the Hale Farm and York Nurseries, also in other places where these old favourites are under proper care. Take, for instance, the Anemones of spring that are, and have been, giving us fine displays of flowers, from pure white to intense scarlet. I do not remember having seen them so fine as they have been this spring. *Anemone nemorosa plena* is remarkably fine. *A. apennina* is charming; its soft blue colour and fine foliage contrast well with the above double white. *A. pulsatilla* is an acquisition, and does well by the stone edging, and ought to be grown more than it is. Then the imported varieties both single and double are magnificent in large beds. Primulas are remarkably fine this season, *P. denticulata* particularly so. *P. cortusoides* and varieties are equally interesting. Our Bird's-eye Primrose (*Primula farinosa*) makes a charming edging plant in the spring garden; its mealy foliage and bright pink flowers have a pleasing effect. *Primula nivalis* is a perfect gem and worthy extensive cultivation; too much cannot be said in its favour. *P. marginata* is very beautiful. *P. viscosa* and others are equally interesting. The Auriculas are magnificent; but the selected Alpines are the best. The Phloxes are charming with bright pink and white flowers, but they require care to keep them within bounds. They make splendid edging plants, and are most at home on the rockery; they are best increased by division after flowering. *Triteleia uniflora* has stood through the last three winters with us; at the present time it is giving us a profusion of its lovely flowers, and is worthy of extensive cultivation. Fritillarias of different kinds are very beautiful, the taller in the borders, the dwarfier in the centres of beds in the spring garden. The variegated-leaved varieties are very attractive. Anyone wanting an effective bed of white flowers in the spring will do well to turn their attention to the Pansy known by the name of Great Eastern. Strike the cutting in early autumn; plant out in good soil as early as possible after the bedding plants are removed. For years past I have found them to answer the purpose admirably.—VERNA.



HARDY FRUIT GARDEN.

APRICOTS have made sufficient foliage to protect the fruit, and the coverings can be removed except in damp or low situations where it may be necessary to continue it a few days; but it is well to uncover on fine days, to harden the trees, as the foliage is likely to be injured by sudden exposure to bright sun. Thinning the fruit must be attended to in good time, and where the trees are young and healthy the fruits may be thinned to 9 inches apart; but in the case of unhealthy or old trees a larger number should be left until the stoning process has commenced, otherwise during this period a portion may fall off, and so render the crop lighter than intended. The great evil in the cultivation of fruit trees is allowing them in fruitful seasons to carry too heavy crops, the consequence being that the fruit is not so fine and well ripened as with a moderate crop, and the trees are so exhausted as to be unable to perfect the buds for the following season, and the result is a state of barrenness every alternate year. Early thinning the young fruit affords a chance of that remaining on the trees being fine and well matured, and enables the trees to annually perform their functions in due season without impairing their vigour. The leaf-rolling caterpillar will require

frequent search, squeezing the leaves affected between the thumb and finger. The foreright and other shoots not required for laying in should be pinched to three or four leaves, removing any superfluous growths altogether, avoiding overcrowding, laying in where required shoots for filling vacant space or extending the trees, nailing or tying in, allowing space in the shreds or ties for the swelling of the growths.

FRUIT HOUSES.

Peaches and Nectarines.—The fruit of the very early Peaches, such as Early Beatrice and Early Louise, are now ripening; and although the fruits are small as compared with the other early kinds, such as A Bec and Hales' Early, still they afford acceptable dishes, and where earliness is a consideration are well worth place. It is likely, however, that they will be superseded by Alexander, which, in addition to being quite as early, has the advantage of having very much larger fruit. Trees with the fruit ripening must not be syringed, and it must not be continued too long in the case of those advanced for ripening. Still attend to regulating and tying-in the shoots, stopping laterals to one joint, especially those from shoots retained to attract the sap to the fruit. Although a drier atmosphere is advisable when the fruit is ripening, moderate moisture in the air is essential for the health of the trees, hence damping the borders occasionally on fine days must be resorted to, and the borders should be examined and have supplies of water as needed to keep them healthfully moist. Ventilation should, whenever the weather is favourable, be liberal, with a little constantly. The temperature should be continued at 60° to 65° at night and 70° to 75° by day, and 10° to 15° higher from sun heat.

The trees started at the beginning of the year have the fruits stoning well, and as that which now remains will do so unless a severe or sudden check be given, the night temperature may be raised to 60° to 65° at night and 70° to 75° by day, with a rise to 80° or 85° from sun heat. With the above temperatures the atmosphere must be kept moist in the daytime by frequently sprinkling the borders and other available surfaces, and by syringing the trees in the mornings and in the afternoons when closing the house, but ventilate slightly during the night, and freely whenever the weather is favourable.

The fruit in succession and late houses will need attention in thinning, which must be regulated by the health of the trees. Some varieties of Peaches and Nectarines where the trees are in good health may be thinned as soon as the fruit commences swelling freely, which gives the fruit a better chance of attaining a good size; but others, as for instance Bellegarde and Barrington, require more care in thinning in their early stages, it being safest to wait to see what fruits take the lead in swelling, and are well exposed to sun and light. Tie in the growths as they advance, and remove all superfluous shoots, carefully avoiding overcrowding, allowing no more to remain than will be needed for next season's bearing or for furnishing the trees. Trees intended to afford ripe fruit in July should be kept growing, maintaining a night temperature of 55°, and 60° to 65° by day, at and above which ventilate freely. See that there is no deficiency of moisture in the borders, giving thorough supplies when needed, and syringe the trees twice a day when the weather is fine, but it must be done early in the afternoon so as to allow the foliage to become dry before night. Keep late houses well ventilated, so that the succession of fruit may meet that grown on walls.

Pines.—Young plants in preparation for fruiting should be separated from those which are now fruiting, so that the former may have the conditions necessary to their attaining robustness of growth and sturdiness of habit. Solar heat will now greatly assist in maintaining the requisite temperature, but care must be taken not to induce in young plants a soft weakly attenuated growth by closing at a very high degree of heat. Keep the plants in a light position, and avoid crowding them. Syringe them about twice a week, and maintain the air about them moderately moist by sprinkling the floors occasionally, employing fire heat only to prevent the temperature falling below 60° at night and to keep it at 70° in the day. Ventilate between 75° to 80°, and diminish or increase the supply of air so as to maintain the temperature through the day at 80° to 90° or 95°, with abundance of air, closing for the day

at 80°. A slight shade for an hour or two at midday will be beneficial. Maintain the bottom heat at 80° to 90°, and when needful afford weak liquid manure abundantly.

PLANT HOUSES.

Greenhouse.—The young Heaths and other hardwooded plants that were potted in February will by this time have rooted in the new soil and be growing fast. Small plants desired to be grown on quickly will be much aided by having their flowers removed. Where there is no special structure for Heaths they should be placed at one end of the house, which must be well ventilated.

Azaleas that have flowered should at once have all seed pods removed, as the formation of seed injuriously affects the young growths. See that the plants are free from thrips and red spider, washing them with an insecticide, as the young foliage will not bear enough smoke to destroy thrips. Syringe liberally every evening with tepid water, and encourage growth by a genial temperature. Plants coming on for late blooming should, as soon as the flowers are showing colour, be syringed every evening, closing the house at the same time, and the increased temperature and moisture will improve the flowers in size. Shade should be given from bright sun, or some varieties will lose colour.

Camellias that are growing where there is no proper structure to give them exactly the treatment they require should be syringed twice a day, which will be found to induce a freer growth than if the foliage is kept dry. Shade must also be afforded from the direct rays of the sun. The earliest-flowered plants that have made a correspondingly early growth must only remain in heat until the buds are set, for if kept too long in heat the buds will become so large as to flower too early; during the growing season is the time to regulate that of flowering.

Chrysanthemums should now receive every attention by potting and keeping them free from aphides. Deutzias that have flowered will now be growing, and should have the old wood cut out after it has flowered, depending on next year's bloom upon the young shoots that start freely from the collar. Encourage the plants with a little heat until the growth is made and flower buds are formed. Transfer all plants requiring it into larger pots, and supply those more advanced with liquid manure.

THE BEE-KEEPER.

WEAK AND DESERTED HIVES.

A CORRESPONDENT (Mr. J. Godley) writes, "Can you tell me through your Journal what can be the reason that within the last month I have lost two hives of bees? One was a large flat-topped straw hive full of nasty black combs with some honey; the other not so large and only half full of white combs and some honey in them. The bees have disappeared, and no dead ones can be seen anywhere. They have been fed all through the winter, which I believe is wrong. I have discovered that the bees out of another hive have also disappeared. My hives have been in a covered house and well protected with hay. I have four stocks left which are weak."

If an experienced bee-keeper were to see the hives that have lost their bees and those that are now in a weakly condition he would be better able to explain the cause or causes of the loss and weakness. As the loss of bees in spring is not at all uncommon, and as weak hives then are common enough and very disappointing, we may profitably notice here some of the causes of deaths and weakness in the apiary. Often, indeed, are weak hives a greater misfortune than dead bees, as many after being watched with the greatest care and fed for weeks and months die at last.

Bees, as is often stated in this Journal, are short-lived creatures, the longest live at the age of nine months, and many do not live half their days. Last year we had hot honey weather at the end of June and beginning of July. Hives then, generally speaking, were strong in bees and well filled with brood. The weather then suddenly changed, no more honey was afterwards gathered in England, and the bees ceased to breed. There were no late hatches of brood. Last autumn and winter were open and mild, and the bees consumed much honey, and continued numerically strong and healthy till February and March of the

present year, when their ranks were rapidly thinned by the death of old bees. Some hives became so weak in bees that they had not power to hatch brood and died. In some hives the oldest bees survived the birth of the first small hatch of brood, and by natural decay and death gave place to their young, leaving a weakness difficult to surmount. Such young bees have a hard and up-hill battle to fight. If they have numbers enough or heat enough to hatch brood, they will live and slowly gain strength. The crisis of life or death in weak hives unfortunately happens in the cold season of spring, when both bees and brood require all the heat they can obtain. Sometimes hives lose so many bees in winter that the survivors creep closely together for warmth, and die by reason of cold in small clusters before breeding commences; and some bees suffer much, if not killed outright, by a superabundance of honey or syrup stored in their combs. Honeycomb is so cold that bees shrink from it in winter. Some beginners glut their hives with syrup before winter and thus do harm. In the midwinter we have seen the bees of many hives hanging in clusters from the points of their combs rather than set amongst them. We have seen bees in heavy hives clustering to their sides rather than live or set near cold honeycomb. Instances are not rare of the bees of weak hives being killed by the robbers of strong hives seeking plunder. In all these cases the dead do not disappear. Bees that die of age, of disease, or exposure to cold, and those that are murdered, are left on the ground or in the hives. In the case of our correspondent the bees all vanished as stated by herself. The stench of foul brood often causes bees to desert their hives. Sometimes they go off as a swarm and leave not a bee behind, and sometimes they dwindle slowly away as in the cases of old age, leaving the queen only to mourn her loss. Foul-broody hives are always weak in bees in spring, and are worse than worthless, and should be "stamped out" at once, as Mr. Raitt puts it, for foul brood is an incurable distemper, and bee-keepers everywhere will yet come to know this.

Better still, they will learn that hives made strong in autumn is the secret of successful bee-keeping: that hives made strong in autumn seldom or ever become weak in spring. Grand results and great profit come from hives properly managed in autumn. I met a Cheshire bee-keeper the other day, when he said that his "hives had been so strong and satisfactory all last winter that he would never have weak hives again. The bees of my hives were never off their boards all winter, and some of the hives were ready to swarm in April." His autumn treatment consisted in giving his stock hives extra bees or swarms of bees from honey hives and in getting late hatches of brood in autumn. All bee-keepers can strengthen their stock hives in autumn by uniting condemned bees to them. Suppose a bee-keeper has six hives at the end of August—three for honey and three for stock; the bees of the honey hives given to the others would make them strong for winter and spring. Even in autumns when there is no honey to be taken it is better, more profitable and satisfactory, to have three good hives than six weak ones, for the risks and losses and disappointments of bee-keeping come from weak hives, and weak hives are the result of mismanagement in autumn.

Our correspondent truly says she did wrong to feed her bees in winter. Bees should not be fed or molested after October. They naturally remain in a quiet semi-dormant state from October till the end of February.—A. PETTIGREW, *Bowdon*.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Plants for 1882 (illustrated), and List of Bedding Plants.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Bedding Plants.*

Anthony Cullen, Staines.—*List of Bedding Plants.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—Several inquiries which reached us by Wednesday morning's post cannot be answered this week. Correspondents would find it greatly to their advantage to submit their questions as soon as possible after the Journal reaches them. This is the only course for insuring satisfactory replies being published in the "next issue."

Double Primroses (*A. C., Sunbury*).—Although we have repeatedly remarked that dry cotton wool extracts the moisture from flowers, we find it still, perhaps more extensively, employed than any other packing material. Had you seen the flowers shrivelled and dried when we opened the box you would not have known them. We can only say that the double crimson variety appears to be very fine, the primrose variety rather coarse, while the others are neither particularly novel nor attractive.

Seedling Carnation (*W. Wallace*).—The flower is sweet, and in a measure attractive; but while we think it worthy of preservation (if the habit of the plant is good) it lacks the qualities of smoothness and symmetry possessed by the best named varieties; or, in other words, while it may be useful for decorative and cutting purposes we think it is of little or no commercial value.

Primulas (*Lancastrian*).—Both the Primulas you name can be raised from seed, and we know of nothing to prevent crosses being had between them by careful manipulation. In reference to obtaining plants of Oxlips we can only suggest that you advertise your wants, stating whether you require the Bardfield Oxlip or the large English Oxlip, or both. They are quite distinct. If you state the numbers of "Wild Flowers" you require, the publisher, we think, will be able to supply them. You will find an answer to your second letter in our issue of July 1st, 1880.

Planting Flower Border and Beds (*Subscriber*).—We think your proposed plan of planting the curved border and beds will be effective; the long border will also look well provided the Alternanthera grows tall enough for its position. The Ageratum you propose using is, we presume, the dwarf variety. Would not the mixed variegated Pelargoniums and Violas, also the scarlet Pelargoniums and yellow Calceolarias, look well in panels with a row of Ageratum next the fence?

Adiantum farleyense (*W. R.*).—The plants usually grow well in such a compost as you have employed, provided they are carefully watered and a genial atmosphere is maintained. Syringe the pots and stage frequently, and shade the plants by fixing a newspaper over them during bright weather. You say you have given "plenty of water;" have you given too much? This is a mistake sometimes made with newly potted plants.

Cucumbers (*Steven Castle*).—The Cucumbers you have sent are very fine indeed. The white-spine variety is 20 inches long, perfectly straight, well proportioned, and firm; colour a dark shining green, and the general appearance not unlike Tender and True. The dark-spined fruit is 2 inches shorter, and is in all respects a beautiful fruit. Both the varieties are evidently good, and the plants are undeniably well cultivated. We have not seen a finer brace of Cucumbers this year.

Warts on Vine Leaves (*F. C.*).—The leaf arrived quite fresh, and is clean and healthy with the exception of warts on the under side of it. These are not caused by the soil of the border, but an over-rich soil promotes the growth of foliage peculiarly liable to injury by an over-moist atmosphere and a sudden change of temperature and the attendant evaporation. The vinery has been kept closed too long at some time or other in the morning, and then air has been admitted incautiously, and perhaps to the extent of lowering the temperature. Read what Mr. Taylor says on this subject on page 338, and in our present issue.

Rose Catalogue (*Rosarian*).—We are unable to answer your question; write to Rev. H. H. D'Ombra, Westwell Vicarage, Ashford, Kent, the senior Honorary Secretary of the National Rose Society. You ask when the "Year Book" will be published for this year? If you mean the "Rosarian's Year Book" it has been published months ago, and was reviewed in our columns at the time; if you mean the "Gardeners' Year Book," it will be published in December.

Seedling Auriculas (*B.*).—The flowers sent are such as are usually raised from seed that has been purchased or that has been saved from ordinary border flowers. Seed saved from good named varieties or from selected flowers containing good properties—such as excellence of form, with clearly defined centres and rich colours—would give very much better results. The varieties before us are not of sufficient merit for culture in pots, but are attractive in borders. We should leave them there, and if they possess the vigour enabling them to withstand the weather they will be attractive; if they succumb that will prove they lack an important element that is essential in border flowers—namely, hardiness and the vigorous growth that can render them effective. You will find notes on the culture of Auriculas in borders on page 377 of our present issue.

Cyclamens (*Idem*).—The varieties of Cyclamen persicum, to which we presume you refer, do not usually grow and flower freely in a cold greenhouse. The temperature should never be lower than 45°, and a minimum of 50° is better. If you can maintain such a temperature and the plants are strong you may allow them to flower from Christmas onwards. As your plants have not proved satisfactory we conclude that at least one important cause of their failure was the absence of the requisite heat for the development of the flowers. The plants succeed well in frames during the summer or planted out in the garden, potting them again in September.

Alpine Auriculas (*A. C., Keighley*).—The flowers you have sent are pretty border Alpines. There is a faint approach to the named varieties as exhibited by Mr. Turner and others in No. 7 and No. 63. The former has a deep rich circular centre, but there its merits end, as the margin is thin, loose, and irregular, the colour also lacking firmness. The latter bears a general resemblance to the laced Alpines, but the margin is too broad and clouded; in fact the flowers represent a coarse and somewhat common form of the type and are quite lacking in refinement.

Manure for Cactus (*J. T.*).—It is quite impossible for anyone to answer your question without knowing to what Cactus you refer and its condition. There is a possibility that manure of any kind put round the plant might be more injurious than beneficial; still, if the plant is very large and the pot in which it is growing very small, the soil also being much crowded with roots

and exhausted, some stimulant may be desirable either in the form of fresh soil or a top-dressing of soil and manure. If you can make the condition of the plant clear to us we shall be glad to give you such advice as will probably be useful.

Insects on Cucumbers (*Mrs. B., Blackheath*).—The numerous white specks on the leaf sent are not insects, nor caused by insects; still on the under side of the leaf we find unmistakable signs of the presence of thrips. The atmosphere of the house in which the Cucumbers are grown has been too dry, and there has also been some defect in the ventilation, unless—and on this point you say nothing—the plants have been bearing for a long time and become exhausted. All such leaves as those sent must be removed, active root-action being promoted, a genial atmosphere maintained, and insects extirpated. Light fumigations on two or three consecutive nights would be useful, and if the under sides of the leaves were sponged with a solution of soft soap, Gishurst compound, or other good insecticide, the insects would be destroyed. The foliage has been scorched by the sun, and careful ventilation is requisite. Syringing the plants freely twice a day would be of great service, and the roots must be well supplied with water, and top-dressings of soil and manure as they protrude through the surface.

Cutback Vines (*T. H.*).—When, from whatever cause canes raised from eyes inserted in the spring are too weak in autumn for either fruiting or planting, the best mode of treating them is to cut them down after the leaves are fallen to the lowest good eye or bud within an inch of the surface of the soil. Roots being already provided, and suitable soil afforded, growth will be rapid in the spring, and with good management you will have strong early-matured canes raised from "cutbacks." This is the best method for those cultivators to adopt who have not well-heated and light structures for growing young Vines in early in the season, say in February and March. Eyes for producing strong matured Vines the same season must be inserted early so as to commence growing in February, and a stove temperature must then be maintained. The starting of cutbacks can be deferred until March, and they will grow with less care than is requisite for Vines directly raised from eyes; indeed they will succeed if needed in a light position in an ordinary vinery. If we have not given the precise information you require write to us again.

Young Vines Failing (*H. F. W.*).—You say this is your "first attempt at Grape-growing," but even this being so it is difficult for us to understand why you did not make yourself better acquainted with the subject before commencing the work. You have acted wrongly both in the choice of Vines, compost for border, and method of planting, and have thus invited failure. Vines previously exhausted by having been fruited in pots are not suitable for planting. Peat and rotted manure should not have been used in making the border, a trench should not have been dug, and the balls of soil and roots placed in and the compost packed round them. Your Vines will, we think, do no good, and probably your best plan will be to destroy them, employing different compost and plant better Vines in a better manner. The best advice we can give you under the circumstances is to read attentively our "Vine Manual," which you can obtain post free for 3s. 2d., and then apply to us again for information on any points that you do not sufficiently comprehend.

Vines from Eyes (*F. J.*).—In all probability the injury to the leaves was caused by the products of combustion from the lamp that you placed in the frame, although you apparently did all that was possible towards preventing damage ensuing. The young leaves of Vines raised so early in a dung frame are extremely tender, and even a sudden outburst of sun for an hour after a few dull days would cause the injury, so would a sharp current of air. Still, we think, judging from the symptoms you describe, that the lamp was the cause of injury. You would have succeeded better had you kept the Vine eyes cool for a month after inserting them in January, and placed them in the heat you name in February. It is exceedingly difficult to maintain the requisite heat and a healthy atmosphere in a dung frame in January and onwards, and the supplementary heat afforded by a lamp must always be inimical to such tender foliage as that of young Vines, Cucumbers, or Melons. You may consider yourself fortunate in succeeding so well as you appear to have done.

A Range of Fruit Houses (*H. R. W.*).—Avoid lofty houses. For a 10-foot wall the best form is a semi-span 15 feet wide, 12 feet high at top of span, with front sashes upon a low 9-inch wall, 18 inches high including wall plate, and the sashes 4 feet 6 inches high. A lean-to for Vines only would answer well without front sashes, but as only part of the range is for Vines it is better for the sake of uniformity as well as for general utility to have them. All interior division walls to be 4½ inches thick, and of an uniform height with the front wall. Avoid heavy woodwork: sashbars 3 inches by 1½, with a rafter 3 inches by 3 at every eighth row of glass, answers well for this class of roof. For wall plates 2½ inches is an ample thickness, and 4 inches by 3 is stout enough for framing of front sashes. The whole of the outside glass to be 21-oz. seconds, and the squares 20 inches by 12. Inside the glass may be 15 oz. seconds. Avoid ridge caps or lanterns for ventilation, they are an unnecessary expense and great heat-wasters, the hottest air always ascending into them. The best form of roof ventilation is a glazed flap a foot wide at top of the south side of the ridge. Front ventilation if required may be of the same form along the bottom of the front sashes. This range, 150 feet long, may be divided into two vineries, each 30 feet long, an early Peach house of 30 feet, and an orchard house 60 feet long to contain Peaches, Nectarines, Figs, Apricots, Plums, or you might have a Fig house of 30 feet, and a late Peach house of the same length. Strawberries in pots might be had on shelves near the glass at back and front. Tomatoes and Cucumbers could also be had in quantity in summer. In winter there would be space for large quantities of Violets. If so much fruit is not required one division might be had for a greenhouse. A length of 30 feet would not contain sufficient Grape Vines for the requirements of an ordinary family; a second house would also afford space for some late-keeping Grapes, such as Lady Downe's Seedling and Black Alicante. If the range is at all exposed to high wind, great stability is imparted to the roof by having an iron bar 3 inches by a quarter put on edge along beneath the roof half way up the front slope upon hollow iron pillars. There should also be stout iron tie rods connecting each back and front rafter, and securely bolted upon them. Even without undue exposure to wind it is well to use the bar, pillars, and tie rods to impart strength and prevent any settlement of the roof, which otherwise is by no means uncommon. We presume you will employ a horticultural builder.

Names of Plants (*J. L., Newport*).—1, Ledum palustre; 2, Andromeda formosa. (*Hunts Henwife*).—Send another specimen, the last was quite crushed. (*W. E. B.*).—Anguloa Clovesii. (*W. B.*).—Daphne Cneorum.

Various (*Tyro*).—You ask us, "What should be the size of 'straw supering hives?'" but do not state whether you intend skeps or straw frame hives. For fairly good districts the contents of a hive should be about 2000 cubic inches—i.e., if you multiply the length, breadth, and height in inches together it should

give you about 2000, but this rule only applies to rectangular hives. For flat-topped skeps you may calculate thus:—Multiply the internal diameter in inches by itself, and take three-quarters of the product, which now multiply by the internal height; this should also give you about the same amount—*e.g.*, if the diameter be 17 inches, $17 \text{ by } 17 = 289$. Three-fourths of this (217) multiplied by 9 the height gives 1953, which may be taken as a good size; but all hives to really admit of management should be capable of expansion and contraction, and this the skep does not. The shallower the hive the more super honey may it yield, but the difficulty of successful wintering increases if you decrease the depth unduly. Supers are fast giving place to sections, but if you adhere to the former no rule can be given you. The larger you choose to make your super the less probability of its being filled, but the greater its weight and value if you succeed. A thin bottom board for a super over a straw hive is an advantage. The size of the hole in the feeding stage may be 2 inches in diameter. If this hole is intended to give access to the supers it is usually made 3 inches in diameter, but the plan is primitive, and quite likely to cause your super to be spoilt by brood. Your fourth question cannot be answered; you must consult your taste in the matter. The ring of straw would secure a larger harvest than a second super. Unquestionably Ligurian bees would do well if properly handled. We have known of bees being kept near to you with the greatest success. We believe your district is much above the average in suitability to apianry work.

COVENT GARDEN MARKET.—MAY 10.

THE improvement of last week has not been maintained, and prices have generally received a check.

FRUIT.											
		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	0	0	0	0	Lemons.....	½ case	15	0	0	0
Apricots.....	doz.	0	0	0	0	Melons.....	each	6	0	8	0
Cherries.....	½ lb.	0	0	0	0	Nectarines....	dozen	0	0	0	0
Chestnuts.....	bushel	16	0	0	0	Oranges.....	½ 100	4	0	6	0
Currants, Black..	½ sieve	0	0	0	0	Peaches.....	dozen	15	0	20	0
„ Red.....	½ sieve	0	0	0	0	Pears, kitchen ..	dozen	0	0	0	0
Figs.....	dozen	8	0	10	0	dessert.....	dozen	0	0	0	0
Filberts.....	½ lb.	0	0	0	0	Pine Apples....	½ lb.	1	6	2	0
Cobs.....	½ 100 lb.	45	0	0	0	Strawberries....	per lb.	2	0	6	0
Gooseberries....	½ sieve	6	0	7	0	Walnuts.....	bushel	7	0	8	0
Grapes.....	½ lb.	3	0	6	0						

VEGETABLES.

		s. d.		s. d.				s. d.		s. d.	
Artichokes.....	dozen	2	0	4	0	Mushrooms.....	punnet	1	0	1	6
Asparagus.....	bundle	3	0	6	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	½ 100	1	3	1	6	Onions.....	bushel	3	6	0	0
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	5
Broccoli.....	bundle	0	9	1	6	Parsley..... doz.	bunches	3	0	4	0
Brussels Sprouts..	½ sieve	1	3	1	6	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Potatoes.....	bushel	2	6	3	6
Carrots.....	bunch	0	4	0	6	Kidney.....	bushel	3	0	3	0
Cap-sicums.....	½ 100	1	6	2	0	Radishes..... doz.	bunches	1	0	0	6
Cauliflowers.....	dozen	1	0	3	6	Rhubarb.....	bundle	0	4	0	6
Celery.....	bundle	1	6	2	0	Salsafy.....	bundle	1	0	0	0
Coleworts..... doz.	bunches	2	0	4	0	Scorzoneria.....	bundle	1	6	0	0
Cucumbers.....	each	0	4	0	6	Seakale.....	basket	0	0	0	0
Endive.....	dozen	1	0	2	0	Shallots.....	½ lb.	0	3	0	0
Fennel.....	bunch	0	3	0	0	Spinach.....	bushel	3	0	0	6
Garlic.....	½ lb.	0	6	0	0	Tomatoes.....	½ lb.	1	0	2	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows	each	0	0	0	0



POULTRY AND PIGEON CHRONICLE.

MANUAL LABOUR IN FARMING.

(Continued from page 375.)

It is bad policy to continue paying men of different capabilities and knowledge of their labour on the same work at the same rate, for although it is common amongst farmers to do this we consider it not only unjustifiable and inexpedient to follow such a practice, but is calculated to render the workmen extremely dissatisfied with their position. The fact of men being thus placed in their daily employment is a source of dissatisfaction to both employer and employed, and the only means we can see of avoiding this is to adopt the system of piece work, in which every man is paid according to his earnings and the quality of his work.

Let us now consider in the interest of the home farmer the relative cost of labour in various parts of the kingdom, for this will, of course, vary much. One thing is, however, certain—that the value or cost of labour will not be affected as formerly by the price of corn or other produce. It is also difficult to arrive at any satisfactory conclusion upon the comparative cost of labour upon large or small farms; we must, therefore, look only to the practical result in the actual payments made in the various districts of the

kingdom. It is difficult to conceive how this can be fairly stated without its assisting the home farmer to some extent in arranging the labour question upon whatever soil or climate he may be managing, or whether the occupation may consist of varying proportions of arable and pasture. If we take the cost of manual labour during the past fifteen or sixteen years in the midland counties it may be stated thus:—Wages have risen from 25 to upwards of 30 per cent., for in 1864 a good able-bodied labourer would earn 12s. per week, besides beer and other perquisites, and in many cases have a cottage and half a rood of ground rent free in addition, worth 2s. 6d. or 3s. per week. This, however, only states part of the case, for notwithstanding the extra cost of labour the farmer does not get above two-thirds of the work which used to be done, although for some years past the men have been receiving pay varying from 15s. to 17s. per week, with the same perquisites of beer, &c., as in 1864. Boys fit for driving the plough formerly received 2s. and 2s. 6d. per week; women 10d. per day. At the present time, however, this kind of labour is scarce until lads are old enough or have had sufficient learning to leave school under the Education Act, for a lad is now getting 6s. per week at eleven years of age, if fourteen or fifteen years old 9s. a week, and if seventeen years old 12s. per week. The women at day work get from 1s. 3d. to 1s. 6d. per day, with the opportunity of piece work, by which the strongest and most willing hands can earn as much as the men. The chief difficulty is, however, to obtain women to work in the fields at all. This is very unfortunate for the home farmer, as it is positively impossible to have various kinds of work done which would contribute not only to profit but to the ordinary decency of the farm premises in the absence of female labour, except at a cost which renders it difficult to secure the advantages which were formerly obtained through this source.

As a matter of course, the increase of wages tells adversely by diminishing profits. But it must be noticed that the use of machinery and the progress of the systems of agriculture generally (until within the past few years of depression) had given a fillip to wages, and has tended to increase the difficulties of the home farmer in his competition with foreign corn importations and the simultaneous increase of local rates. In referring to wages given in the different parts of the kingdom we must not omit Scotland, and we find that in Forfarshire and in Aberdeenshire the wages of farm labourers have risen rapidly. One informant tells us of the contrast between the cost of labour now and formerly. Thirty years ago the money wages in the bothy system were £12 a year, twenty years ago £18, four years ago £24, and lately the money wages were £34 a year. The men are usually engaged by the year, but sometimes half-yearly. Payments in kind, however, are common, and consist of an allowance of two pecks of meal per week, one pint of new milk a day, with fire and light in the bothy. These items and bothy accommodation are estimated at 6s. 6d. per week, the money wages lately paid 13s.; total weekly wages of Scotch able-bodied labourer under the bothy system, 19s. 6d. per week.

In the labour reports from Scotland we find that the Scotch hind works harder than the southern labourer, which is illustrated by the smallness of the staff of labourers upon the Scotch farms. We are informed the southern farmers have not secured from the introduction of machinery the same saving in manual labour which has been effected in the best managed Scotch districts. Now we should hesitate to suggest the better management and supervision of labour in Scotland and some northern counties of England but for the fact stated by the farmers in the eastern counties during the strikes and lock-out of 1874, that they were able to dispense with much labour which they had hitherto been accustomed to regard as indispensable, and thus a discovery was forced upon the eastern counties which Scotchmen had made for themselves a long time previous. In the remarks we have made relating to the bothy system and yearling system we do not mean to say that it represents the rate of wages generally paid either in Scotland or north of England, for we find an important comparison drawn by Mr. C. S. Read of Norfolk in his letter to the *Times* in October 17th, 1874, as regards his payments for labour, and that of Mr. Barclay, a tenant farmer of Forfarshire. He says, "I find that the average weekly pay of a common day labourer in Norfolk to be about 17s. 6d., whereas in Scotland and Northumberland he was assured it came to nearly 25s., yet the cost of manual labour upon the two farms being nearly equal in their requirements show that the highest total labour bill was paid in the case of the lowest rate of wages." This confirms to a great extent our previous observation—that the causes contributing to the smaller labour account in Scotch farming were a better quality of labour, and keener supervision and regulation of it by the farmer.

The next point is earnings by piece work, not including harvest. Gang work, which is peculiar to some of the eastern counties,

may be called piece labour, the economy of which consists principally in the supervision of the gang master or his foreman, is the quality of the work, for as to celerity the men need little urging; for indeed the men who lag behind would be soon turned out of the gang if the gang master or his deputy saw they were reducing his profits, and not giving in their work money's worth. The arrangement between the gang master and the farmer is made previous to the commencement of the work, whether it consists of hoeing roots and corn, together with various items of farm work too many to enumerate here, or the prices of the work either, for the cost of the work done by gang labour will vary considerably in different districts, and can have no fixed sum stated per acre, but they are always paid in coin without perquisites of beer or cider, because overtime does not operate.

Sheep-clipping is another item of piece work which is common to most districts throughout the various counties of the kingdom. There are gangs of clippers who travel about the country during the shearing season, and are noted for their expertness, and also their drinking powers. For although the farmers are usually liberal in supplying beer to the clippers, yet they are seldom satisfied without obtaining on their own account a large supplementary quantity from the nearest public house. As clipping is considered an operation requiring great skill to do the work quickly, young hands are not admitted into the gang without paying an entrance fee. The contract for clipping is generally for ewes 3s. 6d. per score, hoggets at 4s.; the winding-up of each fleece before it is packed away costs about 10s. on thirty-six score of sheep. A vacancy seldom occurs in the gang except through death or old age, for the employment is lucrative and congenial to men not afraid of hard work, and who are accustomed to the excitement of moving about from parish to parish in the performance of their contracts. Really good clipping is a difficult handicraft, and is maintained only by great experience. Upon many farms it is thought advisable to pay the men not by the day, even for work which is practically done by the horses and machinery, yet to encourage the labourer, and in order to secure the utmost labour from him and the horses, &c., work such as drilling Wheat is paid for at 4d. to 6d. per acre; Barley, Oats, and Peas, 4d. to 5d. per acre. The more common way of paying carters and drillmen is by from 15s. to 18s. per week, with house rent free, or at a low rate.

Sheep-washing is often done by the score, or otherwise 3s. per day including four men, but the shepherd receives a gratuity beyond his usual weekly pay, and a liberal allowance to find food and beer for the washers who stand to the tub, or otherwise it is sent by the master from the farm, the work being generally overlooked by the farmer; for when the work is done at a pond or running stream his presence is required to prevent accidents occurring, by which death or serious injury may succeed the washing of sheep if left too long in the water. It is the custom upon farms where the farmer is an experienced man to have nearly all the manual labour of the farm done by the piece or job, whether carried out by men, women, or lads, for women and active lads will at some kinds of work earn as much as the men, and why should they not? The farmer, too, should fix the price in no grudging spirit, remembering the wise saying of old, "There is that scattereth and yet increaseth."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—During the last week of April, and since this work has been somewhat hindered, especially the work on land in preparation for root crops, for in most districts, particularly where the four-course rotation of cropping is most continued, the land is very foul, especially so upon the sandy loam and mixed soils on the vale farms. Drilling Mangold seed has received a serious check by the succession of storms, particularly those which occurred on the 29th of April. Our often-expressed opinion in these columns still holds good, that it is best to avail ourselves of the first season of fair weather in April upon all soils. But in order to be ready for the April season, unless the land is clean it should be autumn-fallowed and allowed to lie high and dry through the winter, so that the drilling season may be carried out with scarifying only, or, at any rate, by only one ploughing, which can be easily done if artificial manures only are used, and which when liberally applied equal a full and abundant crop. Public attention has been much called lately to the management of clay soils, as to whether they should be retained as arable or laid into permanent grass, but this must ever depend upon the exact nature and chemical contents of the soil, and its density and tenacity, for we know of clay soils in certain districts of every county, not only too tenacious for cultivation, but also too impervious in texture for useful pasture, especially where not under-drained.

It sometimes happens that draining upon an extended scale is a very serious question as regards expense, and especially so upon some entailed estates, where the owner has not sufficient interest in

or sufficient means to encounter a heavy outlay. In such cases it is an important question as to how the barren soils can be turned to account. Upon such soils the attention of the home farmer should be given to planting Larch Firs. To prepare the land properly it requires a long fallow, so that, notwithstanding its natural tenacity, it may be thoroughly pulverised and cleaned ready for planting in October, and such land, especially when lying very flat, should be made up into small lands with deep furrows to carry off any excess of water, either five-turn ridges or three-turn will suffice. Plant the Larches at 2 feet apart in the lines and 3 feet between the lines, and at every third line instead of the Larch plants Sweet Chestnuts may be set in order that when the Larches are cut for use the Chestnut will form a future coppice of underwood for the growth of hop poles. The Larch Firs at the end of twelve or fourteen years, if properly attended to by keeping the land hoed and clean during the first year or two, will be ready for cutting by taking the strongest at nine years' growth, and continue to take some annually in the same way, clearing the whole crop at the end of fourteen years; it is sometimes done, however, at the end of twelve years in the better soils. In this way the land will secure a rental varying from 35s. to 42s. per acre, and afterwards the Sweet Chestnut plantation will yield nearly as much for a permanent successional growth of hop poles. We, therefore, call the attention of the home farmer to this system, seeing that so much poor soil is now on hand upon many estates, and so many different opinions being advanced as to what should be done with it.

Hand Labour.—At the time we are writing, and for several weeks past, the weather has been very unfavourable for what we call the bark harvest, and upon some estates in the forest districts where oak timber prevails, it is as important as the corn harvest in some respects, and according to an old saying—"A bad or good bark harvest foretells the weather in Wheat harvest." It is, however, very difficult in our experience to look at the matter in that way, as the very fickle climate in which we live in England can never be forecasted with any prospect of advantage. Men may be employed in filling and spreading farmyard manure upon land lately cleared of green crops, such as Rye and Trifolium, or stubble Turnips fed off late. All these crops may be succeeded by Mangolds and Carrots if the land is cleaned by only one ploughing and pressing. In fact, this is almost the only work even on dry soils which can be done with benefit at present during wet weather by either men or horses. Women may be employed in weeding in the meadows and parklands, taking up Docks. This work is best done by a small and light pick-axe, with one end pointed, the other having a cutting edge about 2 inches wide. On all soils and in all crops this plan we have found best for removing strong and deep-rooted weeds.

Live Stock.—The Channel Island cows which are sent over to this country are said to be not so hardy, but are much more delicate in constitution and more difficult to maintain in good condition than those which are bred in the different counties of England, although they may be the result of breeding from the imported animals. There is no doubt that soil and climate of some of the districts in England would influence the constitution of the stock in various ways; but, at the same time, we must remember that the system of management and the peculiar care and treatment of the animals in the Channel Islands, is of the highest consequence, and should as much as possible be imitated in the management of this stock after arrival in this country. One of the principal points is their being used to the tether, or being, as it is called, stumped out, and this should be continued at their new home, as they will never feed like other stock in the open pastures, at any rate until they become accustomed to it, nor do they do well to mix with Shorthorns in a herd; being the weaker animals, generally speaking they do not get fair usage here.

POULTRY AND PIGEONS

POULTRY NOTES.

A POULTRY Show has for some time been advertised to be held in the Corn Exchange, Warwick, on the 10th and 11th of this month under the rules of the Poultry Club. The entries closed on April 29th, and under a rule of the schedule labels were to be sent on Friday 5th inst. to all exhibitors; and great was the astonishment of some to receive on Saturday morning, instead of the expected labels, an announcement that the Show was "unavoidably postponed for a few days." For the credit of its promoters we trust that some very good reason will be forthcoming for this strange postponement, which may be seriously inconvenient to some exhibitors. We should imagine that an exhibitor in such a case might claim and have his entry fees returned and entries cancelled.

[We believe the Secretary of the Show referred to is in the hands of the police, and that the whole affair has fallen through.]

THE time of year does not seem to us an unfavourable one for a Poultry Show. Breeding birds in general are no longer required for breeding, and those which have good runs and are well cared for

ought still to be in good plumage. Later birds, too, of the past year ought by this time to have reached maturity, and to contend more equally than in the winter with older ones. Pigeons, from which it is desired to have good produce, should on no account be shown during spring or early summer.

"GAPES" in chickens is a mysterious malady. How and when the little red worm is introduced into the windpipe has never to our knowledge been satisfactorily explained; considering the great losses often sustained by poultry breeders and the still greater by Pheasant breeders from its effects, the subject is one worthy of scientific investigation. We believe that fanciers are indebted to Wright's "Book of Poultry" for a recipe for its prevention, which at first sounds strange, but in which after a fair trial we are beginning to have faith. We have never been able from observation to arrive at any definite conclusion as to the cause of the destructive malady. We once kept poultry on a gravelly soil and were hardly ever troubled with gapes; on fresh and sandy ground we had it frequently, but on heavy loam for two years it was quite a pest in our establishment. On all soils alike it has seemed to develop after heavy rains. Some shrewd observer has reasons for thinking that it is communicated to the chicks soon after they are hatched, and can be prevented from passing into the throat by anointing the head. This remedy, if we are not mistaken, is one of the many valuable pieces of information to be culled from "the Book of Poultry." The recipe is:—Mercurial ointment 1 oz., pure lard 1 oz., flour of sulphur $\frac{1}{2}$ oz., crude petroleum $\frac{1}{2}$ oz. This must be rubbed round the chickens' heads when they leave the nest, carefully avoiding the eyes and nostrils.

NEARLY every breed of poultry and Pigeons is specially indebted for its improvement to one or two admirers. We observe that the gorgeous Archangel Pigeons, long not sufficiently recognised at many shows, have a champion in Mr. Arthur Allen, of High Street, Guildford, who proposes to arrange with secretaries of shows to give classes for the breed during the coming season.

WE have before us the schedule of the Cornwall Poultry and Pigeon Show, to be held at Launceston on June 14th and 15th. The classification and prizes are good. Pigeons are shown in pairs—a rare thing in these days. The Hon. Sec. is Mr. Henry Short, of Launceston.

THERE has been of late some questions as to the heat required for the incubation of Ducks' eggs, and Mr. Tegetmeier in his lectures at Kensington confessed himself not accurately informed as to the exact temperature necessary. We believe after several careful experiments that we have discovered it to vary from 102° under smaller Ducks to 100° under the large Peruvian Duck. The latter bird takes nearly six weeks in the incubation of its own eggs. A few weeks ago we put fifteen eggs of Polish fowls under one of these Ducks. At the end of the usual twenty-one days there was not a sign or a sound of a chicken; at the end of twenty-two there was the usual rapping from the early and difficult respiration, and at the end of twenty-three days fourteen chickens duly hatched out. It seemed as if the lower temperature had retarded the development of the chickens, though not to their detriment, for we never saw stronger young birds, and they all hatched at once, as ducklings generally do. We shall certainly repeat the trial, but warn our readers that when the eggs are billed they must be removed to a hen or an incubator at once. The Ducks' broad feet crushed and killed those we left under her; a chicken not being so flabby a little creature as a duckling, which is able to bear the weight of its mother without suffering.—C.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held on Wednesday, May 3rd, at the Charing Cross Hotel. There were present the Hon. and Rev. F. G. Dutton (in the chair), the Earl of Winterton, and Messrs. T. W. Anns, R. A. Boissier, T. Coke Burnell, A. Comyns, S. Lucas, and C. F. Montrésor.

NEW MEMBERS.—The following new member was elected:—Mrs. Ainsworth, Caton, Ivybridge, South Devon. The following new associate was elected:—W. Emerson, Fulbeck, Grantham.

CLUB RULES.—The following additional rules, to be inserted in the schedules of shows held under Poultry Club rules, were adopted:—

7. Any exhibitor who shall be disqualified at this Show for fraudulent practices shall, subject as hereinafter mentioned, be disqualified from exhibiting at any show held under Club rules for such time as shall seem good to the Committee of the Poultry Club. Any person disqualified at this Show may within three days of the close of the Show appeal to the Committee of the Poultry Club against such disqualification, and in the event of the appeal being decided in his favour his prizes shall not be forfeited.

8. Any bird disqualified on account of fraudulent practices shall be retained

by the Committee of the Show for three days from the close of the Show, to give time to the owners for such appeal, and upon such appeal shall be forwarded at once to the Secretary of the Poultry Club, together with the Judges' reasons for disqualification, in writing.

9. Notice of the disqualification shall at once be sent to the exhibitor by the Secretary of the Show, and notice of appeal shall be sent by the exhibitor to both the Secretary of the Show and the Secretary of the Club within three days of the close of the Show.

SHOWS UNDER CLUB RULES.—Communications from the Secretaries of Portadown and Hertford Shows as to holding the same under Club rules were read, and subscriptions granted in aid of the funds of these Shows.

NEXT MEETING.—The date of the next meeting of the Committee was fixed for Monday, June 5th, at the Charing Cross Hotel at 2 P.M. —ALEX. COMYNS, Hon. Sec., 47, Chancery Lane, London, W.C., May 9th, 1882.

OUR LETTER BOX.

Chickens Dying (A. R.).—We have examined the bodies of your chickens, but cannot undertake any chemical analysis for poisons. We feel inclined to think it is some disease akin to diphtheria from which they are suffering. Try the effect of an application of solution of nitrate of silver to the throat, or wash the mouths and throats well with pyroligneous acid. Give good stimulating food, and keep them in a dry place.

Cow Unhealthy (G. H. C.).—In the case described there is no doubt more or less of inflammation of the bladder. The following drink should be given in a quart of linseed gruel, and repeated every day until the beast recovers:—Recipe: Take opium cut in small pieces, 1 drachm; camphor pulverised with spirits of wine, 1 drachm; tartarised antimony, 1 drachm; ginger and aniseed in powder, of each 1 oz.; treacle, two tablespoonfuls. The other case of swelling between the hoofs is probably "The foal in the foot." This frequently proceeds from a redundancy of blood in the system, attended by some inflammation. To the small swelling may be applied with a wooden skewer butter of antimony, oil of vitriol, or aquafortis; then let the animal stand in a dry stall for one hour after dressing.

Feeding Young Linnets (A Constant Reader).—When intended to be reared by hand they should be taken from the nest when about ten days old, or when the tail has begun to sprout. They may be fed on scopped bread mixed with mawseed (Poppy seed), and a little hard-boiled egg. Some persons use rape seed, but if this is employed it should be first scalded and then well washed to deprive it of its pungency. Rape seed, however, we regard as too pungent and oily to be a wholesome food for birds in confinement. Hemp seed, of which all birds are very fond, is also too fattening and exciting, and should only be used medicinally. The young when hungry will stretch up their heads and gape open their mouths, when the food may be put in a small lump at a time by means of a flattened stick or cut quill. They require feeding often, and care must be taken that their food is never sour. Young cock Linnets are distinguishable from the hens, as the lower parts of the feathers present a yellowish shade, whereas the breasts of the hens do not present this marking, but are more spotted with longitudinal dark spots almost running into stripes at the sides.

Brahmas Fledging (R. T.).—Brahmas are frequently slow in getting their feathers on the crop shoulders, &c. We do not see any reason to suppose that there is anything more than this in your case.

Tumbler Pigeons (J. S. L.).—This class of Pigeons is distinguished from all others by their revolving or turning a summersault backwards in the air while flying. They are very widely diffused, and there are several varieties of them. All, however, are very docile or easily tamed, light fliers, have pearl irides, and their beaks, though varying much in length, have a similarity of form, and there is a tendency in most of the varieties to throw birds with white pinions and a white mark under the beak. As a race they are very prolific.

Sheep and Mangolds (J. M.).—In feeding sheep upon Mangolds there is always a risk of disease by the stoppage of urine, to which they are liable when they get nearly fat enough for sale. This is accounted for by a deposit of globules of sugar in the urinary passages and the kidneys, as ascertained by post-mortem examination; and the worst part of this matter is that the sheep cannot be cured, and unless they are sent away for slaughter directly they show the first symptoms the flesh becomes impregnated with urine, and cannot be sold as human food.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882. April. May.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Sun. 30	29.778	48.5	41.6	S.W.	46.2	55.4	36.8	104.2	31.5	0.102		
Mon. 1	29.733	49.3	45.9	S.W.	46.6	59.4	42.4	112.9	36.1	0.031		
Tues. 2	29.936	53.8	48.9	S.W.	47.7	59.7	43.8	106.6	37.7	0.137		
Wed. 3	29.825	54.3	51.0	E.	48.3	68.9	45.0	110.7	38.1	0.124		
Thurs. 4	29.667	52.9	50.9	N.	49.9	65.5	50.4	82.9	47.3	0.079		
Friday 5	29.867	52.0	50.2	N.W.	49.9	65.3	45.8	112.7	39.2	0.410		
Satur. 6	29.899	52.6	49.9	N.W.	51.2	64.7	48.8	118.3	48.4	—		
	29.815	51.9	48.3		48.5	63.0	44.7	106.8	39.8	0.753		

REMARKS.

30th.—Squally, with sunshine and light showers.

1st.—Showery at first, afterwards fine and bright.

2nd.—Morning showery and windy, afterwards fine and calm.

3rd.—Fair early, heavy rain 10 A.M. to 11 A.M.; afternoon and evening fine and warm.

4th.—Wet morning; fine afternoon and evening, though misty.

5th.—Fine and bright; rain at night.

6th.—Dull at first; afterwards fine, bright, and warm.—G. J. SYMONS.



18th	TH	Reading Horticultural Show.
19th	F	
20th	S	Crystal Palace Flower Show.
21st	SUN	SUNDAY AFTER ASCENSION.
22nd	M	
23rd	TU	Royal Horticultural Society. Great Show (three days).
24th	W	Linnean Society at 8 P.M.

PACKING CUT FLOWERS.

VARIOUS modes of packing flowers for travelling by post or rail are adopted, all of which, perhaps, answer the purpose of those interested: In some cases where carpenters are regularly employed and at the service of the gardener the most elaborate methods are adopted, a complete, and I may add expensive, set of boxes being devised. Where, however, neither carpenters nor suitable materials for making boxes are available it often happens the gardener has to do the best he can with any kinds of boxes, tins, or baskets that may be obtainable, the grocers and confectioners frequently furnishing the former. In the first case, according to my experience, the flowers frequently are not sufficiently plentiful to quite fill the boxes. This, it is almost needless to state, is a most injurious fault; and, even where obviated, the extra weight that has to be paid for, especially when sent by passenger trains, consequent upon the employment of large boxes, trays, and other contrivances, is anything but agreeable to some employers. On the other hand, where there are no series of suitable boxes available packing is far from a pleasurable occupation, and not a few flowers are irrecoverably spoilt before arriving at their destination, owing to having been crushed into too small boxes.

As I have attempted to point out, it is not generally what we would have, but what we are obliged to utilise—everything really depending upon circumstances. That flowers are sent long distances, arriving at their destination in good condition when carefully bunched, and laid, and tied in large boxes, or disposed upright with the aid of blocked-up trays, these having holes bored of sufficient size to admit of the bunches of flowers being drawn through, and either tied through the bottom of the box or fixed with wedges, I readily admit; but although I am in a position to adopt this method, I neither care to do so nor intend to recommend others to adopt it. Let those who admire the practice fully explain the system and point out its merits. The plan I follow, and which appears to be perfectly satisfactory to my employers, is, at least in my estimation, far more simple and economical. It is simple in operation and economical as regards original outlay, time taken up in packing, and expense in carriage.

Boxes, especially those procured from the grocers, are so lightly constructed as to be easily crushed, especially when returned loosely in a large vegetable hamper; and although I employ many of these for certain flowers, or when there is a doubt of their being returned, I rely principally upon flat well-made wicker baskets. These are cheaply made in two sizes, in

length to fit tightly across the vegetable hampers, the largest being 20 inches long, 10 inches wide, and 10 inches deep; the smallest the same length and width and 6 inches deep, outside measurement in each case. With ordinary fair treatment they last several years, are available for packing fruit, and can be sent with perfect safety independent of the vegetable hamper. It is astonishing what a quantity of flowers can be packed in two or three of these baskets, and these in their turn are easily disposed near the top of the vegetable hampers, and thereby reach their destination in a better condition than when thrown about in smaller packages, the railway officials paying but little heed to largely lettered words of caution.

At one time the baskets were lined with paper to protect the flowers from being injured by the uneven sides, and also to make them as airtight as possible; but since I employed Spinach leaves there has been less need of paper—in fact, it is only used in cold weather. It may, perhaps, be remembered by some I once strongly recommended in these pages Spinach leaves as a packing material for cut flowers, and a further two years' experience confirms my views. Numbers of gardeners have for a long time packed the choicer vegetables in Spinach leaves, and why should not cut flowers be equally as fresh from the same packing material? That they do travel well and arrive fresher than in any other material I have plenty of evidence to prove, including some from the best of judges—viz., market salesmen. Consequently I employ neither moss nor cotton wool, and seldom tissue paper for packing, whether the flowers are sent by post or rail, but rely entirely upon either Spinach, Lettuce, or cultivated Sorrel leaves. These are prepared by being washed, their stalks pinched closely off, and the midribs crushed, and those leaves not fully grown, being softer, receive the preference. The bottoms of the baskets are covered and the sides partially lined with them, and on these are flatly disposed fronds of Ferns, *Spiraea* leaves, and other greenery, and on these is placed a layer of the most robust flowers, next another layer of leaves, lining the sides as before, then follows a layer of more tender flowers in the case of the small baskets, or moderately sturdy flowers in the largest baskets, and so on till these are filled, the topmost layer invariably consisting of the most fragile flowers, such as Azaleas, *Deutzias*, *Begonias*, *Abutilons*, and *Pelargoniums*, finishing off with more Spinach. It is very important that all the flowers should be laid in as flatly as possible, or they crush each other, and those who uppack them should never attempt to drag out the under layers before finishing the topmost, or much damage may easily result. Primroses, Violets, Snowdrops, Pinks, and Carnations are placed in bunches and packed closely and upright in the shallow baskets, Spinach leaves being disposed about them and over them. *Eucharises*, *Gardenias*, and *Stephanotis* are packed in a single layer in small shallow boxes obtained from the confectioners, and with the help of Spinach are so fixed as to be quite immovable when shaken, the same being the case with all the packages.

In the very hottest weather a great bulk of flowers and leaves are apt to heat quickly, this rendering them useless. To obviate this I place paper between the layers, and also pack principally in the shallow baskets. Cotton wool does not heat, but it absorbs moisture instead of supplying it, while moss heats rapidly and strongly. For instance, during the hot weather experienced last July I packed two large boxes of Roses at night, using Spinach freely, and travelled to town

with them early the next morning. When unpacked I found them in excellent condition, while another large box also filled with Roses and sent less than fifty miles was in a much less satisfactory condition. They were packed closely and upright, their stems being bedded in damp moss and in two layers, a tray separating them. The topmost layer was in good condition, but the most in the lower division had become quite hot with the result of expanding, and spoiling the Roses for the purpose we required them. I ought, perhaps, to mention we start our hampers by goods train about 6 P.M., and the next day about 11 P.M. they are delivered at the town residence, having travelled a distance of about 115 miles in the interval. In this manner they are sent at a comparatively cheap rate; in fact it is quite unnecessary to send by passenger trains unless for special occasions.

FLOWERS BY POST.

We are almost daily dispatching choice flowers by post, and although the contemplated post-office innovation may effect a revolution in mine and others' systems, I will briefly describe my present method. We use light tin boxes, made by a local tinman at about 3d. each, and these measure outside 6 inches in length, 3 inches wide, and 2 inches deep. We line them with Spinach leaves, pack the flowers closely in a single layer, cover with more leaves, and on these dispose a few fronds of Maidenhair Fern, the lid fitting tightly. The box is then neatly wrapped in strong white paper, tied each way with string, and an addressed parchment label suspended from one side; on this is placed the stamp or stamps, generally to the value of 3d., and this receives most of the punching. We have frequently sent six Gardenias or as many Roses, sprays of Stephanotis, and other flowers in these boxes, and they invariably reach their destination "beautifully fresh." That last sent contained two large Catherine Mermét Roses, two sprays of Stephanotis, and two blooms of Souvenir de la Malmaison Carnation. The boxes are returned uninjured with the other empties.—W. IGGULDEN.

THE ALEXANDER PEACH.

I RECEIVED from Mr. Rivers of Sawbridgeworth some trained early Peaches and Nectarines at the beginning of the year. I had them placed in a vinery in which fires had been begun on the 2nd of January; on the 19th and 20th of April some of the Peaches were quite ripe, and the ladies who ate them pronounced them "delicious." As this Peach ripens its fruit earlier than the Early Beatrice, and is a larger fruit, I think it ought to be more known. From the experience I have had in forcing Peaches I believe it to be the best hitherto introduced; it is a yellow Peach, it requires no particular attention, and the light it had was from a roof covered with Vine leaves. The trees are now making good wood. I see no reason why Peaches of this sort should not be ripened at the beginning of March in a house where they could obtain plenty of light, supposing fires were commenced on the 14th of November. My trees were stopped at 6 inches; it has been necessary to stop them again. From the time I received these trees from Mr. Rivers to the time when the fruit was fully ripe was fifteen weeks.—S. N.

LATE BROCCOLI AND EARLY CAULIFLOWERS.

WE shall have but little need for "anybody's" late June Broccoli since such early Cauliflowers as Defiance and Early Forcing can be had ready for cutting in such a short time from a warm shady border. After the small tender heads of Cauliflowers turn in Broccoli is not much appreciated because of their flavour, which is much stronger however young they may be cut. If a supply can be maintained by early Cauliflowers which turn in so rapidly it would not pay to grow Broccoli to come into use during the month of June. When we consider the ground they occupy and the length of time they are upon it compared with early Cauliflowers they are anything but profitable.

Since the introduction of these real early kinds another operation may safely be dispensed with, and that is the storing of Cauliflower plants in frames during the winter. We have nothing against this good old practice, for we have annually carried it out, and until recently looked upon a batch of plants so saved as essential to yield our early supply. Early last season I sowed seed of each of the above varieties in heat, and when large enough pricked the plants into boxes, and had them thoroughly hardened off by

the time we could safely plant them out. They were placed by the side of autumn-raised plants of Early London and Walcheren that were kept in pots during winter, and protected from the severe weather in a late Peach house. The latter had the protection of handlights when first planted out, while the early kinds only had flower pots over them for a few days. Early Forcing and Defiance were all cut before Early London commenced forming heads, being fully a fortnight earlier, and on our hands fully four months less time. Either of these varieties are valuable additions to our list of early vegetables.

It matters but little which of the two is grown; they turn in about the same time, Early Forcing being a trifle the larger grower, but this is so little that Defiance cannot gain preference on that point. It is not necessary to grow both, and I am inclined to prefer Early Forcing because it has proved a little the hardiest. If sown towards the end of August, and kept in a cold Peach house or to the front of a late vinery safe from frost, they would continue growing slowly, and would produce snow-white small heads in 6-inch pots in a frame early in the season. They are valuable for growing in frames either planted out or in pots, and I fail to see why they are not as worthy of frame room as Carrots and other early vegetables are. If a hotbed is made in a frame and covered with old potting soil, and the seed should be sown thinly in rows 9 inches apart, the young plants being thinned out when large enough. Those drawn out can be pricked into boxes, to be eventually planted outside, while those in the frame can remain until heads are produced. Between the rows a crop of Radishes or other salading can be taken.

Early Forcing and Defiance are rather tender, and are killed when the weather proves very severe, even with the protection of a frame and mats over it. During the early part of September, 1880, I sowed these varieties in a frame by the side of Early London and Walcheren. The frost was severe, and the last-named variety, as may be expected, was not much injured, while half of Early London was killed, about one-fourth of Early Forcing remained alive, and none of Defiance.—L. D. W.

FERTILISERS—CHLORIDE AND SULPHATE OF POTASH.

ON page 362 "SINGLE-HANDED" has some remarks on the chloride and sulphate of potash, and I desire to notice some of the points he raises and the queries he puts in reference to some previous remarks of mine. He asks, (1), "What about the cost?" and (2), "Is the muriate (chloride) really more available because soluble?" (1) Though I purchased chloride of potash in December last I did not keep a note of its price, but I am certainly under the impression that potash is cheaper in this form than as a sulphate. For two or three years I have applied potash in the form of nitrate of potash, a form in which both nitrogen and potash are readily assimilable, but this manure cost about 26s. per cwt.; and as I have been assured that this salt is subjected to so much adulteration in this country as to cause the per-centage of potash to fall far below what its normal value ought to be, I have in consequence substituted the chloride. (2) I most certainly understand that the chloride is "more available because soluble." The only likelihood of having cause to be disappointed with its effects would be through adulteration. So far as I understand, the fault that agriculturists have had to find with sulphate of potash has just been this question of its insolubility. Potash, therefore, as a chloride or a nitrate would be presented in a form to be preferred because of its solubility.

The next query is, "Have plants not the power of dissolving what they want?" and the answer, "Decidedly they have; how otherwise could plants take up tribasic phosphate?" It need hardly be pointed out that this admission tells greatly against the position "SINGLE-HANDED" himself has taken up as regards the necessity of employing potash as a carbonate because of its solubility; for if plants have the power thus readily to dissolve the food they require, what matters the particular combination in which potash is presented? While putting his admission in that form, I do not, however, press the point, for the reason that plants do not, at least in any great degree, possess the power of taking food from the soil unless it is in an assimilable form. How otherwise are we to account for the fact that chemical analysis proves certain soils to contain more than a sufficient supply of phosphoric acid, potash, and lime to meet the requirements of crops, and that such soils may nevertheless remain comparatively barren until these constituents are provided by the cultivator just the same as if they were entirely absent? Further, do plants really dissolve tribasic phosphate? Though practically insoluble in water, acids dissolve it, and so do many salts. Does "SINGLE-HANDED" ignore the part these act, or the help they accord to

plant roots as solvents and chemical agents in the soil? The fact is we are greatly in the dark in all these matters, and there is room for no one to dogmatise. Of this one thing we are certain, that potash is a necessity for some plants—*e.g.*, Vines, Potatoes, Peas, and Onions, and that it is of benefit to most crops. Every gardener who has used fresh wood ashes knows the benefit potash as a carbonate is to the above crops. The chloride and nitrate, if not quite so soluble, are practically so, and may be used with every success. The nitrogen of the latter alone renders it of great value, while, if we judge of the effects of common salt, the chlorine in the former would appear of some use.

With regard to the quotation from a pamphlet emanating from New York on Potato culture, I may be allowed to say that the quotation as it stands is of no value. Tubers of inferior quality, waxy and watery, are alike produced on land without manure and on soil manured with material from the farmyard. But that does not prove that farmyard manure is absolutely hurtful on all soils, because we know the opposite to be the case; and we also know that good Potatoes can be and are produced on unmanured soil. If "SINGLE-HANDED" has in practice found such results follow the use of chloride of potash, and can state what other constituents were applied at the same time, we could arrive at something definite on the point. I might cite the authority of Ville, and say if you do not give your Potatoes a sufficient supply of potash the Potato disease will attack the crop with virulence. If, on the other hand, your supply of potash is given in sufficient quantity the disease will not attack the Potatoes. That is Ville's opinion. How many practical men agree with him? Grapes contain a larger per-centage of sugar than any other fruit, and, according to the New York authority, chloride of potash would spoil the crop; yet in France as much as 4 cwt. to the acre is used, and gives, with other manurial constituents added, the very best results. How can we tell which is right? Alone by experiment on the soils we have to do with.—B.

MR. MEIKLEJOHN'S AURICULAS.

ONE day lately I had great pleasure in waiting on Mr. Alexander Meiklejohn, the veteran Auricula grower of the north. He is located in a hamlet west of the historical town of Stirling of the name of Raploch. Northwards, about a couple of miles, the Bridge of Allan nestles at the foot and along the side of some hills. Away in the north-west the snow-capped crest of Ben Lomond is seen, while all around lies a tract of rich cultivated land. Mr. Meiklejohn is a hale old gentleman, over fourscore I believe, but as fond of his favourites as ever. Some two thousand plants were blooming, most of them strong, and representatives of most of the best sorts were present. The plants are grown in the old-fashioned Auricula frames, the size of pots 60's, the compost loam, cow dung, and leaf soil. Potting is commenced directly the bloom is past, and employs the owner two months to complete. Seedlings are raised, some of which are distributed. A very good grey-edge, named "John Morris," may be heard of yet. The raiser of Topsy and Alexander Meiklejohn was a neighbour of Mr. Meiklejohn. A contributor was expressing surprise at the number of plants some growers had collected in a short time. Money does it. One grower bought up a third of the whole stock of A. Meiklejohn when it was distributed. It may be of interest to state that the number of growers is rapidly increasing in the north; that the Journal is a home friend amongst the fraternity; and that the most pleasant holiday one can take at this season is to visit the owner of a collection of Auriculas.—GROWER.

VINES MILDEWED.

I NEVER saw my Vines look better or more promising than they did in the early part of this season. The weather was fine and bright, and I did not consider fire necessary. I had a large number of Pelargoniums and other plants in the house, which had to be watered every day. About the middle of April we had some rather heavy rain, and soon afterwards I observed a few of the leaves on the Vines had turned a dark colour and then brown. I thought ventilation had not been given early enough in the morning; but a few days afterwards I saw that the mischief was extending, and on a more minute examination of the leaves discovered the presence of some form of mildew. I then knew what to do. The plants were removed under frames, the season being sufficiently advanced to allow of it. The border was well watered and fire commenced, the pipes being painted with sulphur mixture according to the receipt below, but only half the quantity mentioned was used, as it was not a bad case. The alteration in the Vines in a few days was surprising. They are now going on as well as I could wish to see them. The shoots were not stopped, as I

wished fresh leaves to be made, but that can now be done. The border was watered because it was rather dry, and a dry soil below with a large amount of moisture overhead is favourable to mildew. The fire will be discontinued, or only lighted in damp weather after the bloom is set. Size of house 16 feet long by 12 feet broad.

The mixture employed consisted of 2 ozs. of soft soap, 2 lbs. of flowers of sulphur, and half a gallon of water. Dissolve in warm water and paint the pipes with it.—AMATEUR, Cirencester.

THE VIRGINIAN AND SIBERIAN LUNGWORTS.

THE Lungworts are very numerous, and distinctly divisible into two groups by the characteristics of the stem and foliage, and this distinction has gained for them at least two distinct names employed in general use which I think desirable to be retained. Certainly this should be so for all practical purposes. The first is a group of plants with coarse stems and foliage, covered more or less with hispid hairs, and tubular flowers without a spreading corolla limb, and of which we may regard our common British



Fig. 79.—*Mertensia virginica*.

species (*Pulmonaria officinalis*) as the type; and related to it are many others found in different parts of Europe. The others are plants with smooth almost glaucous stems and foliage, tubular flowers with a spreading corolla limb more or less. Other structural points are immaterial in practical floriculture. This group is known under the name of *Mertensia*, and to it the two species about to be described belong, known respectively as *M. virginica* and *M. sibirica*; and as decorative plants those belonging to the *Mertensia* section are much superior to the *Pulmonarias* proper. The two kinds I have selected are very handsome plants, and there are several others many of which have never been found in our gardens. There is one which we rarely meet with—viz., *M. dahurica*, which is a perfect gem among alpine, the flowers being of a rich coerulean blue, on slender stems about 6 to 9 inches high, appearing in early spring.

The Virginian Lungwort (*M. virginica*), which is shown in fig. 79, has a fleshy rhizome-like root. Flower-stems 12 to 18 inches high, with numerous ovate smooth leaves and terminate clusters of flowers, each an inch or more long, tubular, with a spreading basin-shaped limb. Before the flowers expand they are of a reddish purple colour, and afterwards change to rich porcelain blue, which contrasted with the still unexpanded buds is very pleasing. It flowers in April and May, and has been known in

this country for nearly two hundred years, being first raised from seed sent from Virginia in the garden then belonging to the Bishop of London at Fulham and was highly esteemed, and it is still regarded as one of our best hardy plants. It is found in all the mountainous districts of the eastern United States.

Cultivation and Propagation.—It grows fairly well in ordinary border soil, but it delights most in a mixture of peat, leaf soil, and sand in a damp and shady border; a partially shaded position; and if protected from strong winds so much the more likely is it that the period of beauty will be extended. Soon after flowering the stem dies. In this particular it differs greatly from the Siberian species, as the stems of that plant are much more persistent. The only way to propagate it is by division unless seed is imported, but that is unnecessary, as it rapidly increases; and this should be done in early autumn or very early spring before the plants are in active growth, so as to cause as little check as possible to them.

The Siberian Lungwort (*M. sibirica*) is quite a distinct plant. It produces large fleshy rootstocks, with the upper surface crowded with active buds. The leaves are large, ovate lanceolate, smooth and glaucous, arising from the top of the rootstock. Flower-stems stout, fleshy, leafy, freely branched, with pendulous clusters of pale porcelain blue tubular flowers, with the unexpanded flowers pink. The corolla is not so open as in the last species, while the tubes are rather longer. It is very free, first appearing in June and lasting till the end of summer; the graceful disposition of the flowers and abundance in which they are produced rendering it a most distinct and useful hardy plant. As its specific name implies it is a native of Siberia, and can endure our most severe winters. There is also a variety named *M. sibirica alba* with flowers scarcely warranting the appellation, but still very distinct from those of the typical form. They are both plants, as well as the Virginian species, which all lovers of hardy flowers ought to possess.

Cultivation and Propagation.—Unlike the last, the Siberian Lungwort does not require peat, as it thrives admirably in ordinary garden soil, especially if placed in a damp position. It grows very freely and flowers profusely, and it is necessary to stake the flower stems, as the weight of the flowers with the rain forces them to the ground and they are covered with dirt. This is readily increased by division of the rootstock in early spring previous to growth commencing, or by striking the cuttings in a cold frame. Last season a plant in a damp position abundantly multiplied itself from seed, which ripened upon the plant and fell to the soil, where it readily germinated, and quite a colony of young plants surrounded the mother plant.

As the leaves and young stems of these plants are very fleshy and tender they are eagerly devoured by slugs, and it is necessary during their early growth to keep a sharp look-out for those depredators, or they will completely demolish the young shoots, and consequently ruin the plant as far as the flowering resources are concerned for the season. The spray figured was obtained from the collection of Mr. Ware at Tottenham.—HORTUS.

APPLES.

I THINK that if the election of Apples is continued and writers of the "WILTSHIRE RECTOR'S" type follow, the weeding process being still carried out, we shall very soon have our lists of Apples brought to such narrow limits that there will be little if any difficulty in selecting. I cannot entertain the idea of being confined to about a dozen varieties, no matter how good they may be. For the past fifty years I have been an admirer and cultivator of that most invaluable and indispensable fruit the Apple, and there is nothing like home-grown Apples. We all like them, and with good selecting, good cultivating, and careful storing they are to be had in condition the year round. I fear that many of the kinds we knew in our youthful days are fast disappearing, but I have been trying to keep the neglected ones together as a legacy and to help others. What I mean by a legacy is to continue in cultivation such sorts as the Bertle Bittersweet, or Nicholson's Sweet Apple that used to be so prized in the early harvest time; the Redstreak, White and Red Jenneting fast disappearing; Maudlin, or, as the Manual has it, Madeline, a charming summer Apple almost lost in our locality. We remember many Apples such as the Old Hangdowns, the Dog's Snouts, the Barndoor, the Dovecote, the Backdoor Swing, Lady Finger, the Cass Apple, Eve, the Flowerytown, Hunthouse, large and small, the Summer and Winter Tea-Shilling, and the Cockpit. The Striped Beefing is one of the very best Apples for market purposes in our northern locality, a free grower, capital bearer, and fruit of large size; the old favourite Russet, or, as it is called by

some, Leathercoat, Tanfield Red, Ironsides, and others might be named which have a history peculiar to themselves.—PYRUS MALUS.

ORCHIDS IN MAY.

THE Orchids are now growing vigorously, and it is, therefore, important to maintain a moist atmosphere by frequent and copious waterings upon the paths when the weather is warm and the sun's rays strong, while the houses should be carefully shaded, and air given by means of the bottom ventilators. The houses are at present very gay, and prominent amongst the many attractions are the following:—

Arpophyllum giganteum, with its handsome spikes of deep rose-coloured flowers, is in fine condition. This is similar to a *Laelia* in growth, and thrives well in the *Cattleya* house.

Brassia verrucosa is flowering well and makes a grand display, producing fine spikes of numerous light olive-green blossoms spotted with purple at the base, and with a white lip marked with green warts. This succeeds in the *Cattleya* house, and requires a compost of fibrous peat, loam, and broken crocks.

Burlingtonia fragrans is exhaling its May-like odour from its numerous pure white flowers with yellow-tinted lip. This is a fine basket plant.

Cyrtopodium Andersonii and *C. punctatum* are producing their spikes, promising a good display, the latter being the freer of the two. These thrive best at the coolest end of the East Indian house in good fibrous peat and loam, with a liberal supply of liquid manure when the spikes are advanced.

Dendrobium calceolus has a fine spike of from ten to twelve bright yellow flowers. It is a free-growing Dendrobe, its only defect being the short duration of the blossoms. *D. crystallinum* somewhat resembles *D. Bensoniæ* in growth, but is much easier of cultivation. It is showing its numerous purple-tipped white flowers with orange lip. *D. Falconeri*, one of the finest of the genus, is producing its lovely blooms, which are of a pale rose colour tipped with violet, and with a pale yellow lip, and remains in perfection for about a fortnight. *D. fimbriatum* has large brilliant yellow and elegantly fringed flowers, and *D. f. oculatum* has orange yellow blood-spotted blossoms, and both are now at their best.

Epidendrum bicornutum.—This handsome species from the West Indies is in bloom, its branching spikes from the top of its hollow pseudo-bulbs bearing from eight to twelve pure white fragrant flowers, which last for about three weeks. It thrives best over a warm-water tank.

Calanthe Dominii.—This fine hybrid, with its beautiful lilac purple-lipped flowers, is now very beautiful, as are also *C. masuca*, with deep lilac flowers, and *C. veratrifolia*, bearing pure white blossoms and lasting a long time. These should now be removed into a drier atmosphere, and the roots never allowed to become dry.

Cattleya Aclandiae, with its lovely yellowish green flowers and rich rose-coloured lip, is blooming finely, and will last some time in perfection. It should always be grown near the glass and kept well watered, as it is very impatient of drought. *C. citrina* has large beautiful citron yellow flowers, exhaling a delicious Jonquil-like perfume, and is now very attractive. This is a block plant, and should always be grown in a downward position, as it differs from the other *Cattleyas* in having a pendant habit of growth. *C. intermedia* has a fine spike of from five to seven light rose-coloured flowers. This is a grand *Cattleya* for this time of the year, and is exceedingly effective. It is of easy culture. A plant in a 7-inch pot will sometimes carry four spikes, three with seven and one with five flowers, making twenty-six blooms in all. *C. Mendelii* and its varieties are now producing their blooms, ranging from pure white to dark pink, scarcely two being alike. *C. Mossiæ* and its varieties are finely in bloom at present, and are always a study for the Orchid lover, the varieties being even more diversified than those of *C. Mendelii*. In fact, out of one hundred plants we might select about forty varieties.

Laelia purpurata is very lovely now with its large richly coloured fragrant flowers, having pure white sepals and petals, and a rich violet-crimson lip, and remaining beautiful for a considerable time.

Maxillaria venusta has large fragrant white flowers, and is now blooming well, as is also *M. luteo alba* with creamy white blossoms. This thrives in the cool house, but now when in flower should be removed to the warm house, in order that the blooms may last longer.

The Masdevallia house is at present rendered gay and attractive by the violet-crimson flowers of *M. Harryana*, the orange-scarlet blooms of *M. ignea*, and the rich magenta-coloured blossoms of *M. Lindenii*.

Odontoglossum cirrhosum is in fine condition, with splendid spikes bearing from fifteen to twenty pure white flowers, sprinkled with rich purple, and exhaling a Hawthorn-like perfume.

Oncidium ampliatus majus is now in great beauty with its numerous large yellow flowers, which remain a long time in perfection. *O. cornigerum* is similar to *O. sarcodes* in the pseudobulbs, but it has a denser spike of handsome yellow flowers, spotted with red. *O. Papilio*, with its butterfly-like blooms, is charming now, and will continue producing its rich brown and yellow flowers nearly all the summer. *O. phymatochilum* has pretty white-lipped yellow and brown flowers now in splendid condition, and remains a long time in full beauty. It should always be kept in the Cattleya house, and grown in good fibrous peat. *O. sphacelatum* is an old free-flowering *Oncidium*, which blooms well now. The long branching spikes bear a profusion of brown-barred yellow flowers, which last in perfection for about a month.

Saccolabium ampullaceum, with erect spikes of lovely rosy-pink flowers, is very pretty, as is also the superb variety *S. a. Moulmeinse*, with long dense spikes of rose-coloured blossoms. *S. curvifolium* is also gay with erect spike of charming orange-scarlet flowers. *S. præmorsum* is very fine with its long, pendant, dense spikes of elegant white blossoms, slightly sprinkled with lilac spots.

Trichopilia crispa produces drooping spikes of from two to three large white-edged crimson blossoms, and *T. coccinea* has pretty yellow and brown crimson-lipped blooms, both being now in flower, and well suited for baskets.

Vanda Batemanii, *V. suavis*, *V. teres*, and *V. tricolor* are all beautiful, their grand spikes of flowers lasting at least six weeks in perfection.—ORCHIDIST.

STRAWBERRIES.

THE vagaries of Strawberries during the past few months at Girtford, especially some early seedlings, have been very extraordinary. Many have never been without trusses of bloom, although mostly abortive, since September last, and I hardly expected this to be followed by healthy and fertile blooms this spring, but such is the case, and there is every appearance of a good crop, little damage having been done by early frost. With some of the sorts there is fully six weeks' difference in the period of blooming between this year and last, but it is not so with all the varieties. Some which showed first flowers last year on the 14th May were this year equally forward on the 3rd April, and should we be favoured with a continuance of spring weather we may fairly expect Strawberries before the end of May. Dr. Roden's Amy Robsart is again, as in 1880, to the front amongst the fairly sized earlies, but the blooms seem more susceptible of frost than the smaller-fruited May Queen. Last year Amy Robsart did not keep its position, and this year several other varieties have been distanced by sorts which usually flower considerably later, notably Sir Charles Napier, which is this season in advance of Vicomtesse Héricart, Keens' Seedling, and Marguerite, and on a par with Black Prince. I should like to know if others of your readers have noticed any peculiarity in this respect. I have several hundred cross-fertilised seedlings from the best and earliest varieties, as well as a large collection of English, American, and continental sorts, on trial this season at the Experimental Garden, and upon the whole the bloom is plentiful and strong, and augurs favourably for a full crop.—T. LAXTON, *Bedford*.

CARBOLIC ACID AND WEEDS.

IN reference to this subject, which has been recently alluded to by several writers in these pages, we quote the following report from the Royal Botanic Society's Quarterly Record, which describes some experiments in destroying weeds on gravel walks:—

"As requested by the Committee, I have to report that since my experiments in 1869 with chemical compounds, with a view to determine their relative values in the destruction of vegetable growth on gravel walks, additional trials have from time to time been made with a variety of substances recommended for the purpose—amongst others, sulphuric, sulphurous, hydrochloric, and carbolic acids, chloride of sodium, sulphate of copper, chloride of zinc, flowers of sulphur, paraffin oil, and Burnett's and other disinfecting fluids; and also during 1876-1877 a large quantity of refuse fluid, presented to the Society from a colour works, which contained free sulphuric and other acids, sulphate of copper, and most probably other metallic salts. It was used in the proportion of one of mixture to three of water, and its application destroyed all vegetable growth, and none reappeared on the walks for more than three years after. Since 1877, however, we have not been able to obtain a further supply of this or any similar liquid from any source, and the authorities at gas works report that the only refuse they can supply at a low rate is spent lime.

"Of the several agents tried from time to time three only have been retained for further experiment, all the others being considered unsuitable, either from their high cost or inefficiency. These three are—

No. 1.—Sulphuric acid.

No. 2.—Carbolic acid.

No. 3.—Chloride of sodium (common salt).

"After trial of several proportions, the following were determined upon. It will be noted that the proportion of sulphuric acid is given by weight, as this is, for well-known chemical reasons, the most reliable measure; the weight of salt is when dry as in ordinary domestic use. The relative values are based on the following commercial values—viz., Sulphuric acid, 1*d.* per lb.; carbolic acid (Calvert's No. 5) at 3*s.* 9*d.* per gallon; common salt at 40*s.* per ton; water cost, nil; weight, 10 lbs.=1 gallon.

No. 1. Sulphuric acid	1 to 15=10 lbs. to 150 lbs. water=10 <i>d.</i> —850 to 1000 ft.
No. 2. Carbolic acid	1 to 50=2½ pts. to 125 pts. „ =14 <i>d.</i> —850 to 1000 ft.
No. 3. Salt	56 lbs. 12 <i>d.</i> —850

"The area of walk treated with each amount of liquid is stated at from 850 to 1000 superficial feet, as the quantity required depends upon the form, pitch, or condition of the walk—such as rough, damp, shaded, &c., and especially in relation to sulphuric acid and salt, both of which have so high an affinity for water that the hygrometric condition of the gravel is important.

"The action of the several compounds is as follows:—No. 1, sulphuric acid, is immediately fatal to all vegetation on contact. No. 2, carbolic acid, is slow in action, gradually turning the leaves, and especially the roots, hay-brown. No. 3, salt, is almost immediately fatal on a damp walk, or after the first wet day, and in a short time a few sharp showers of rain wash the gravel clean and bright.

"The preventive action of salt is only good for about three or four months, vegetation reappearing in perhaps an aggravated amount on damp or shaded walks. As yet the duration of the preventive action of the acids has not been fully determined, but the garden superintendent has marked on a plan the walks as severally treated, and the Fellows of the Society and visitors to the garden will be enabled to judge the relative values of the agents.

"The liquid compounds were spread over the walk by the ordinary water pots with tin roses. Lead or pewter would be better, zinc must not be used. A rose made of thin sheet German silver resisted the action of the sulphuric acid well.

"For the distribution of the salt I constructed a special machine. It consists of a square box sieve of perforated zinc, mounted on wheels with an automatic action, so arranged as to communicate to the sieve a jolting motion when drawn along the walk.

"The weeds on the walks consisted of grass, spargula, and small varieties of moss, &c.

"From time to time I will report the result of the experiments, and shall be happy to make trial of any other agents recommended.

W. SOWERBY, *Secretary*."

SINGLE DAHLIAS.

REMEMBERING the facility with which single flowers can be raised from seed, it is after all not so much a matter of surprise that the number of new varieties should rapidly increase, as referred to in your last issue. Single Dahlias possess a chaste beauty and simplicity that seems to commend them for general usefulness. I grew some successfully last year, and have some of the best named varieties fit for bedding-out now, if I might safely do so, and it may be of interest if I refer to their present treatment.

One word as to "named" varieties. A named variety I take to be the one grain of corn sifted from a bushel of chaff. I obtained a large package of seed from a firm last year, and though nine-tenths grew there was not one of the number, though they had their individual beauties, to compare with the velvety maroon and rainbow tints of Paragon, the rich pink shade of Painted Lady, the pure yellow and dwarf lilac beauty of lutea and glabrata, or the crimson of coccinea, and last, though not least—perhaps it should be placed first for general usefulness and effect—alba, or its synonyme, White Queen. I would therefore say without hesitation to those who may desire to grow or give a trial to single or bouquet Dahlias, and both are exceedingly useful for cutting purposes, Commence with named kinds. A frame with bottom heat will suit cuttings, where they will root at once, with a little sand around the base of the cutting to prevent damping-off. Nothing is better for rooting them in than sawdust. I always prefer with such succulent softwooded cuttings to allow them to dry or semi-callus at the base of the cuttings. When rooted give plenty of air, and harden off for bedding-out as soon as can safely be done. The earwig is not so much an enemy of the single Dahlia as the double; but in old gardens, especially with Box edgings, slugs do much mischief. A most efficient remedy is to make a new bed; they will be established before this enemy becomes plentiful again. Large blooms are generally not desired, so thinning need not be resorted to. Diluted liquid manure will

much assist the formation of fine blooms, and soot water will add considerably to the depth of the tint, besides keeping vermin and aphides at bay.—W. J. M., *Clonmel*.

SAWDUST FOR PLANTS.

I MUST say I was greatly tickled at Mr. Thomson of Drumlanrig discovering the value of sawdust in gardens. As far back as thirty-four years ago (when I first wrote to you) I was wondered at for working with sawdust, but only those who try it will know its great virtues. My gardener cries out for cocoa-nut fibre; I say, "No, use sawdust." Now my plan was this:—Supposing I made up a bed of hot manure for a frame, I at once covered it with the lights and filled in 6 or 8 inches of sawdust, and let it be ever so hot I could at once use this frame. Water it well, and in a few days you may plunge your pots down to the rim, and so soon as you see the young plants growing vigorously be sure that they have a fibre or two into the sawdust, and it is then you must decide what to do, for if you do not the plant will rush in two or three days out of your comfortable keeping, but the sawdust must be kept damp. And then what comes of it? It becomes a fine rich black brown, crisp to the hand, and invaluable for potting composts. Anyone also who can get sawdust and run the house sewage through it will find a manure of no mean value. It may be said of sawdust that anything and everything will grow in it if moisture is supplied and decay of the sawdust can be promoted or started before using it.—W. R. W. SMITH.

CALVARY CLOVER.

In the notice to correspondents in the Journal of April 20th I observe a paragraph headed "Calvary Clover." The plant in question is doubtless *Medicago intertexta*, as you surmise, seeds of which I have had from Mount Calvary, though it is found also in the south of Europe. There seems to be a feeling that this plant is peculiar to Mount Calvary. The seed pods when properly cut form a series of crowns of thorns, and the leaves have a crimson spot resembling a drop of blood. I enclose you one of the crowns and four seeds. The original seed from which the enclosed were grown came from Mount Calvary.—D. H.



Fig. 80.

BELVOIR.

BELVOIR CASTLE in situation and aspect partly resembles "majestic Windsor." It is placed upon an abrupt elevation, now covered with vegetable mould and woods, and formed into terraces.

Dr. Stukely, in the year 1726, saw the coffin and bones of the founder of a Priory of Black Monks at Belvoir, Robert de Toden, who died in 1088, dug up in the Priory chapel, then a stable. Another coffin and lid near it was likewise discovered, with the following inscription:—"The Vale of Bever, barren of wood, is large and very plentiful of good corn and grass, and lieth in three shires, Leicester, Lincoln, and much of Nottinghamshire." And what was true in or about the year 1088 is equally true at the present time as regards the extent and fertility of the plains surrounding Belvoir, presenting to the naked eye on a clear day from the terrace a nearly level landscape of twenty-five miles in a north and north-easterly direction.

Belvoir is supposed to have been the site of a castle since the Norman Conquest, and was acquired by the Manners family by marriage at the beginning of the sixteenth century; and has been the seat of consecutive Earls and Dukes of Rutland until the present time.

Close to the walls of the Castle, and on an elevated terrace, is a small flower garden, to enter which we have to pass through vaults, corridors, and up winding staircases, dimly lighted by loopholes. Passing through a low doorway we are once more in the open air and in an old-fashioned flower garden, with Box edges 2 feet high, and beds planted with Wallflowers, Arabis, Aubrietias, Tulips, Hyacinths, &c.; whilst on the walls and between the buttresses there are old historical Fig trees, Vines, Magnolias, Clematises, and other plants, reminding us of days gone by. We retrace our steps, and wandering over the well-kept grassy slopes we notice on the terrace walls two fine specimens of *Magnolia conspicua* in full flower, exposing their glorious cups of beauty to the soft breezes of the vale of Belvoir; whilst close by is a noble specimen of *M. grandiflora*. Bearing a little to the south-west of the Castle we come to the

CHIEF FLOWER GARDEN.

The beauty of this far exceeded my preconceived opinions, high though they had been. Readers must not imagine it is an elaborately designed geometrical garden cut out in turf, or beds formed on gravel and edged with Box, a shoot of which must not exceed the height of 2½ or 3 inches. No, there is nothing of the kind; but passing through a small iron gate we enter a garden of irregular form, sheltered from

the north-west, north, and north-east by belts of evergreens and shrubs, and containing beds and borders of all sizes and forms—oval circular, oblong, and crescent, with all their modifications, presenting a brilliant mass of colour. Blue and white predominate, but the colours are so tastefully blended that there is not the slightest suggestion of glare or vulgarity—an arrangement that we should only expect from such an accomplished horticultural artist as Mr. Ingram. Immediately before us is an oblong bed filled with masses of Belvoir yellow Wallflowers, Alpine Auriculas, *Myosotis dissitiflora*, purple Pansies, *Aubrietia deltoidea*, and white Arabis. On our left is another bed of irregular shape with lines of pink double Daisies, yellow Polyanthus, *Viola Cliveden Blue*, Hyacinths, deep crimson Polyanthus, and a mass of yellow Wallflowers in the centre. Next there is a crescent filled with a mixed collection of varieties of *Narcissus*, notably amongst which is the variety called Empress, scarlet Anemones (*A. fulgens*), and dense masses of *Saxifraga ligulata*, a plant which Mr. Ingram uses freely and effectively.

One of the most charming little plants in this garden was a snow-white double Anemone *A. nemorosa* fl.-pl. Anemone *apennina* is also in beauty. Following the circuitous route of the path we approach a triangular flower bed, having a groundwork of Arabis *albida*, with pale Polyanthus and *Scilla sibirica* interspersed—a very pretty arrangement. Further on is a circle, the simplest and most beautiful design in the garden; it has a groundwork of *Sedum acre aureum*, and is planted with *Viola Cliveden Blue* and common Heather, the effect of which, as a whole, is pleasing in the extreme; the combination of colour being perfect, the various shades of green and gold of the Heather and Stonecrop making an excellent foil for the blue Pansies.

At the bottom of a steep slope on the left is a small geometrical garden planted with the common kinds of hardy spring flowers. Leaving this garden by the south-west corner we notice gorgeous bushes of *Kerria japonica* on our left, and in the shadiest part of this corner the beds are carpeted with *Saxifraga palmata*, and by itself a large mass of *S. ligulata*. Wending our way along the well-wooded hillsides, and passing through a rustic gate, a sharp turn to our right brings us in full view of

THE ALPINE GARDEN.

This is a triumph of horticultural skill and of patient perseverance the results of twenty years of study, travel, and experience in this branch of horticulture. In the distance the hillside is clothed with alpine treasures in all their verdant beauty, creeping over and amongst huge blocks of red grit stone which project as it were naturally, but really placed by Mr. Ingram with artistic skill. At the top there are planted *Antennarias*, *Stachys*, and other silvery-leaved plants to represent snow; then lower down are *Sedums*, *Saxifrages*, *Cheiranthus*, *Silenes*, Arabis; descending still lower towards the valley we have *Primulas*, (*P. cortusoides* flowering remarkably well), *Gentians*, *Aubrietias*, *Phloxes*, *Veronicas*, *Myosotis*, *Lithospermums*, *Violas*, *Limnanthes*, and others yet to appear above ground. The large dense masses of *Aubrietia*, *Myosotis*, and Arabis were particularly striking. Then on the left the ground falls 50 or 60 feet, and there are terraces of flower borders with their occupants arranged in curved lines and chains, the front of each terrace being built up 2 feet high with rough stone, and planted with *Veronica*, Arabis, *Phlox*, *Myosotis*, *Lamium*, &c., (indeed Mr. Ingram builds all his retaining walls and plants them in this way, which gives a more pleasing effect than the best of dressed stone-built walls), the lines and chains being formed of variegated Thyme, the old but good *Viola lutea*, *V. Cliveden Blue*, Daisies, Wallflowers, Arabis, &c. Particularly effective and novel was the pretty little *Veronica repens*, the flowers dotted here and there making it appear as though there had been a slight fall of snow. A little further on there were more beds cut out of the turf, the most effective of which was planted with beautiful hardy *Primulas*. The garden here is undulating and broken with clumps of flowering shrubs and evergreens, with rustic stone steps overgrown with Lichens and Mosses.

Amongst the shrubs was a beautiful specimen of *Pyrus Malus floribunda*, a fine clump of *Bambusa Metake*, *Spiraea Thunbergii*, *Genista præcox*, a noble specimen of *Araucaria imbricata* nearly 40 feet high, and *Cryptomeria elegans*. Climbing over a rustic arbour was an old plant of *Akebia quinata*, the first time I have seen it growing out of doors. Close by is a Thorn, the top of which has grown some distance horizontally, and is now clasped and overgrown by a *Clematis*, with numerous stems as thick as a man's wrist: the effect is very picturesque. A few yards from here is a sturdy plant of *Arundo conspicua* which has withstood the past severe winters, whilst the ordinary Pampas Grass has been killed.

A GOOD SUGGESTION.

Whilst walking round this delightful garden Mr. Ingram favoured me with his opinion that the authorities at Kew, now that they are about to construct a new rockery and alpine garden, should make it as thoroughly representative as the means at their command will admit, not only botanically but geologically, by having samples of sufficient bulk of the different geological formations throughout the kingdom. On these should be planted examples of such herbaceous and alpine plants as are known to succeed on the respective formations. To show that he was in earnest, Mr. Ingram expressed his willingness to assist in such a desirable object by all the means in his power.

The visitors to the Castle and gardens frequently ask Mr. Ingram what his secrets are which enable him to obtain such solid masses of flower and withal so brilliant, for they are sure he must have one or more secrets; to which the reply is that he takes care to employ no plants that are small or weak, or that are too old and exhausted, but to use only such as are sure to give the best returns, and if there be any magic spell at Belvoir Mr. Ingram attributes it to an occasional use of seassand and granite dust. Taking a reluctant leave of this floral paradise we retrace our steps towards the Castle, and passing the lawn-tennis ground arrive at

THE KITCHEN GARDEN.

This is situated on the east side of the Castle, and in the vale below where I imagine it must be very liable to late spring frosts. There are eight acres enclosed by walls, and seven acres of kitchen garden and orchard outside the walls. At the north end of the enclosed portion is a good range of wide and lofty lean-to houses, consisting of five vineries and one Peach house. The first is a Muscat house planted with eleven Muscat of Alexandrias, and sturdy veterans they are, showing a useful crop of Grapes. The second division contains Black Hamburgs, chiefly planted last year and looking very promising. At the back of this house are five standard Ficus elasticas in tubs 14 feet high and 6 to 8 feet through, and are used for decorating at the Castle. In No. 3 division are Hamburgs again in flower, with some capital examples of Strawberries in pots on shelves at the front and back, the kind being La Grosse Sucrée. No. 4 contains Alicantes, Golden Queen, and Gros Colman. No. 5 is planted with Muscats and Mrs. Pearson; in this house was a fine batch of Amaryllis vittata coming into flower. The next and last division in this range is the Peach house containing a good crop of Peaches, and planted against the back wall are some extra strong Camellias, and a good specimen of the grand but rarely grown plant *Luculia gratissima*, although, unfortunately in this case, the crop of flowers is not so abundant on account of having to keep the house as cool as possible lest the Peach trees should be injured just at the time when a little warmth is required by the *Luculia*.

Taking a walk round the kitchen garden, which is kept in excellent order, sowing and planting is being pushed on with vigour, and the crops that have stood through the winter look as though they had not been very hardly dealt with, whilst bush and other small fruits are very promising. The west wall is covered with Pears, amongst which were particularly noticeable Shobden Court, Van Mons Leon Leclerc, Marie Louise d'Uccle, and Soldat Esperen. The north wall was covered with a grand lot of Morello Cherries, and the east wall with Plums and Apricots, the latter suffering severely by the disease. Some 40 yards in front of the range of vineries is a wall running across the garden, and planted on the south side with Peach trees and on the north with Morello Cherries, the space between the wall and the vineries constituting the reserve garden for the herbaceous and alpine plants.

Leaving the kitchen garden by a door on the east side we come to a block of three-quarter span houses in five sections, three of them being devoted to growing Ferns and stove and greenhouse plants for furnishing and cut flowers. The fourth is a Strawberry house filled with a splendid batch of La Grosse Sucrée and Keens' Seedling, to be succeeded by British Queen and Dr. Hogg, the first dish being gathered on 16th February; Keens' Seedling and La Grosse Sucrée were the kinds gathered. The Cucumber house contains such a crop as I have never beheld at this time of the year; the varieties grown are Telegraph and Woodthorpe Seedling. Early Cucumbers and Strawberries are undoubtedly the chief features in the fruit department at Belvoir, and are as creditable to Mr. Ingram as is the spring gardening.

Having conveyed my thanks to Mr. Ingram for his courtesy and kindness I bend my steps homeward, well pleased and edified by my visit to Belvoir.—J. U. S.

A FEW notes taken during a recent visit to this the home for spring flowers may, perhaps, be of interest to some of your readers. A great many of the early bulbs were over, but the chief of the other plants are in full beauty. Although on the day previous to my visit 14° of frost (on the grass) had been registered, the flowers looked but little the worse. The beautiful *Myosotis dissitiflora*, where much exposed, appeared to have suffered the most. The *Aubrietias* are very fine—much larger in flower than one usually sees them. They are all seedlings of Mr. Ingram's raising, in all shades of colour, from pale lilac to dark purple—quite a show in themselves. Another very effective plant is *Iberis gibraltarica hybrida*, bearing a fine mass of large trusses of white flowers shaded with lilac. *Anemone fulgens* (scarlet) and *A. apennina* (blue), intermingled with *Arabis* and other flowers, make a picture not easy to be forgotten. *Doronicum austriacum* (yellow) with bright green foliage is largely used.

Wallflowers are very fine, and are now in full beauty. They are chiefly selected seedlings, there being some very fine varieties amongst them. *Saxifraga ligulata* has been very fine, but is now over; it is said to be the best of that class. A great quantity of *Narcissi* are being increased. The Emperor and Empress are very beautiful, but many of the varieties grown are very attractive. Oxlips and Cowslips, large and improved varieties, chiefly seedlings, are extensively used. In the Violet garden Marie Louise is flowering freely in the open.

On the slopes are fine collections of alpine and other plants sys-

tematically arranged, interesting alike to the botanist and gardener. Among the flowering shrubs, *Azara microphylla*, with small yellow flowers of Vanilla-like perfume, was very sweet. On the grass are some fine specimens of *Rhododendron Nobleum* and *R. Blandianum*, and several hybrids in fine flower. *Pyrus Malus floribunda* was a mass of flower buds.—G. SUMMERS.



IT is announced that a HORTICULTURAL EXHIBITION AND MARKET will be held in the Agricultural Hall, London, from July 24th to August 5th of the present year. The Show will be devoted to all kinds of garden requisites, such as conservatories, heating apparatus, flower pots, lawn mowers, implements, flowers, fruits, &c.

— A CORRESPONDENT sends the following recipe for making DANDELION WINE:—"To make four gallons, pour four gallons of boiling water over the heads of one gallon of Dandelion flowers, let it stand till cold, then strain off; add 3 lbs. of loaf sugar with half of the peel of four Lemons and four Seville or sweet Oranges; boil half an hour the other half of the peel with the Oranges and Lemons sliced put in at new-milk heat with a little yeast, let it stand three or four days to ferment, then place it in the cask. In a week add half a pint of brandy and stop up the cask. In six months either bottle or draw from the wood, and if it is desired add a few more Dandelions."

— WE are requested to announce that the WESTON-SUPER-MARE AND EAST SOMERSET HORTICULTURAL SOCIETY will hold their annual Exhibition on Wednesday, August 2nd.

— GARDENING APPOINTMENTS.—Mr. Oliver Revill, late gardener to W. J. Evelyn, Esq., Sayes Court, Deptford, S.E., succeeds Mr. Bevan as gardener to T. Pain, Esq., Audley's Wood, Basingstoke.

— TESTIMONIAL TO MR. MILLER OF CLUMBER.—A correspondent writes—"A few friends met at the Lion Hotel, Worksop, on the 10th inst., to present to Mr. Miller a purse of gold on his leaving Clumber after being there upwards of twelve years, and twenty in the neighbourhood. It was decided by Mr. Henderson, Thoresby (who made the presentation), Mr. Sutton, The Manor Gardens, and Mr. Wallender of Hodsock Priory, not to allow Mr. Miller to leave the neighbourhood without some indication of the esteem entertained for him by the gardeners and others in the district. The subscriptions amounted to upwards of £30, and wishes were expressed that so able a gardener may soon obtain a situation worthy of him."

— "THOSE," writes 'H. S. E.,' "who appreciate crisp Lettuces in the spring will do well to try HICKS' HARDY WHITE COS. They are far better than the Bath both in flavour and to the eye. They attain a fair size, are very crisp and sweet, and grow rapidly. Last winter was very mild, so I am not in a position to say whether it bears out the name of 'hardy.' It stood the worst of last winter, however, very well indeed, and I believe it really is as its name implies."

— WE learn that the CARDIFF ROSE SOCIETY will hold its second annual Exhibition in the Drill Hall, Cardiff, on Wednesday, 12th July. The Honorary Secretary is Mr. A. Pettigrew, Castle Gardens, Cardiff.

— LAST year Mr. W. H. Gower of Tooting sent out six new Zonal Pelargoniums designated by the names of some of former English queens. All were pretty and distinct, but one of the best

is *PELARGONIUM QUEEN ELIZABETH*, which has flowers of good size and excellent form, the colour being a rich rose shading to white at the base of the two upper petals. They are borne in compact umbels, which are produced very freely during the winter, when the plant is especially valuable. Several other promising forms will be sent out this season. A few plants of *Matricaria eximia crispa aurea* that has recently been referred to in these columns are very pretty, and if they retain the characters they at present possess the variety will become a great favourite, as the foliage is neatly crisped and of as good a yellow tint as the Golden Feather.

— A CORRESPONDENT sends us the following relative to the SOUTH SHIELDS CEMETERY.—“To the lovers of floriculture a visit to the cemetery will amply repay the persons making the journey. The grounds are beautifully laid out, and there is an excellent display of spring flowers in full bloom. Several beds of Tulips have lately been much admired by many persons. The massive rockeries in the same quarter are resplendent with Wallflowers, Primroses, and other kinds of flowers. In the conservatory there are some rare Ferns of considerable beauty, and an extensive assortment of flowering plants. Many of the graves are neatly adorned, and a stroll through the grounds is rendered agreeable by the variety of colour and taste displayed in the decoration. Since the appointment of Mr. B. Cowan to the post of superintendent the cemetery has undergone a marked change, and it has become much more frequented by visitors than was the case previously.”

— ONE of the plants seldom employed for conservatories is *SAXIFRAGA CYMBALARIA*, but at Kew it is much appreciated for that purpose, and at the present time the plants are covered with bright yellow flowers, its dwarf habit admirably adapting it for the front row of the side stages. *Euryops pectinatus* is a very showy plant when in flower, closely resembling *Chrysanthemum frutescens* in shape and size of flower, but the colour is bright yellow, and the florets, however, are not so closely set as in *C. frutescens*. *Arctotis grandiflora*, a South African plant, and one of the most showy and useful Composites for indoor decoration, would well repay for more extensive cultivation, and just now is superb. The flowers are 3 or 4 inches in diameter, and remind us of that grand old plant *Mutisia decurrens* that is so seldom seen. It thrives well in any light rich soil.

— A CORRESPONDENT writes :—“One of the most showy and attractive plants that is now in flower in the conservatory at Kew is *SCHIZANTHUS PINNATUS*. This is a first-rate annual for culture in pots, and deserves to be more generally grown. Large bushy plants grown singly in small 48-size pots are loaded with their charming blossoms. Amongst them are many of very superior quality, varying considerably in habit, colour, and size of flower. Some are of the darkest purple, others of a light rosy pink, whilst others are almost pure white with dark spots. They look extremely pretty associated with other flowering plants, and last a long time in perfection. *S. retusus* is even better than the last species in colour. The corolla is rosy pink, the upper lip bright yellow. The latter species does not grow nearly so strong as *S. pinnatus*, but is very free-flowering.”

— THE annual display of *CALCEOLARIAS* AT BEDFORD HILL HOUSE, BALHAM, is now approaching its best condition, the blooms being well advanced and the colours well developed. The excellency of the strain, which Mr. Rapley has obtained by such careful and long-continued crossing and selection, is well known, but improvement is being constantly effected in every respect; the size, form, and colour of the flowers, with the dwarfness and vigour of the plants, all receive attention with highly satisfactory results. One very noticeable feature is the general

good quality of the plants. Any of doubtful merit are rigorously excluded, and though the variation in colours and markings is so great any approach to deterioration is at once observed, and means are adopted to prevent its affecting the stock. Though large the blooms are not coarse, and they are mostly very full and rounded—just of the type most pleasing to a *Calceolaria* fancier. Many rich and varied tints distinguish the numerous forms—rose, crimson, maroon on deep golden or pale yellow nearly white grounds, the colours being dispersed in dots, veins, or heavily massed. Of the selfs *Cloth of Gold* stands pre-eminent in all characters. It is very dwarf and free, the blooms large, usually about 2½ inches in diameter, of good form, full, and clear bright yellow in colour. Arranged with the darker forms it is most effective. Considerable advance towards a pure white variety of good quality has also been made. It is found the rosy crimson self varieties are the most unsatisfactory in habit, but already this has been much improved, and progress is being steadily made in dwarfing the plants and increasing the sturdiness of the flower stems. The plants are arranged in a long bank in lean-to house with a north aspect, and the tasteful contrast of the various tints produces a brilliant effect.

— THE schedule of the LIVERPOOL HORTICULTURAL ASSOCIATION announces that the fourth Exhibition will be held in Sefton Park, August 5th and 7th, and the third Chrysanthemum Show in St. George's Hall, November 21st and 22nd. At the summer Show liberal prizes for plants, flowers, fruit, and vegetables will be offered in eighty-six classes, a large number being open to all competitors, the others restricted to amateurs residing within ten miles of Liverpool. In the plant classes the chief is that for twelve stove and greenhouse plants, for which £15, £10, and £5 will be given as first, second, and third prizes. In the cut-flower classes Roses are liberally provided for, a total of £9 10s. being offered in three prizes for forty-eight cut blooms. £12, consisting of £6, £4, and £2, are offered for eight dishes of fruit, distinct kinds, not more than two varieties of Grapes; and vegetables have several classes devoted to them. At the autumn Show, in addition to special provision for Chrysanthemums, both cut blooms and specimens, miscellaneous plants and fruit have thirty-nine classes devoted to them. The Committee of this Association have adopted a very laudable method of encouraging the writing of original essays upon horticultural subjects by under gardeners. Prizes of 10s. 6d. and first-class certificates are offered for the best essays on Vine Culture, Azalea indica and Cape Heaths, and Rotation of Vegetable Crops, which must be sent to the Secretary by August 31st of the present year.

BATH FLORAL FÊTE.

MAY 10TH AND 11TH.

HORTICULTURAL exhibitions in Bath, as arranged by what is known as the Band Committee, are better recognised and appreciated institutions than is the case in most cities of the same dimensions. All the leading inhabitants, if they do not subscribe quite so freely as is desirable, at any rate appear to be generally interested in the success of the shows, and for miles round the same interest is taken in them. The exhibitions are held in the Sydney Gardens, these being very convenient and suitable. Fairly liberal prizes are offered, the classes are open, and concessions are made to those exhibitors whose expenses are necessarily heavy; consequently, if favourable weather be experienced, the result is certain to be satisfactory. Unfortunately the Committee have in several previous years been disappointed in this respect; but on the present occasion the weather could not possibly have been more propitious, and we should imagine the attendance on the first day equalled the most sanguine expectations. Spacious tents were erected for the various exhibits, and these were fairly well filled without infringing unduly on the path room—a wise provision worthy of general imitation, as crowding destroys the visitors' pleasure.

Azaleas were a prominent feature in the display, notably the twelve obtuse pyramids staged by Mr. W. F. Biggs, gardener to J. C. Hurle, Esq. All these were in the best possible condition, averaging about 6 feet in height; and very beautiful were the specimens of *Model*, Sir C. Napier, *Duc de Nassau*, *Flag of Truce*, and *Duchesse Adelaide* de

Nassau. Mr. Jas. Cypher, Cheltenham, followed, his specimens being more depressed and less even, but were otherwise perfect. A very brightly flowered group of nine Azaleas, staged by Mr. W. Long, gardener to C. Gardiner, Esq., easily secured the premier award in their class. Among these were good examples of Iveryana, Roi d'Holland, Charmer, and Souvenir du Prince Albert. Mr. W. C. Drummond took second place with a creditable group. Mr. Long secured the first prize for a group of twelve new varieties of Azaleas. Of these the most attractive were Empress of India, Madame Louis Van Houtte, Superh Liebig, and Madame Eugénie de Kirchove; Mr. W. C. Drummond following with small plants of the beautiful Mons. Joseph Lefebvre, Daphne, Barissinsky, J. G. Veitch, and Jean Nuytens Verschaffelt amongst others. These exhibitors occupied the same positions with single specimen Azaleas.

The class for twelve stove or greenhouse plants in flower was closely contested by the old rivals, Mr. Cypher and Mr. Tudgey, gardener to J. F. Greswolde Williams, Esq., Worcester. Mr. Cypher had rather the best of it, his specimens of *Erica Cavendishiana*, *E. ventricosa magnifica*, *Azalea Duc de Nassau*, *A. elegantissima*, *Franciscea eximea*, *Stephanotis floribunda*, *Anthurium Schertzerianum*, and the still finer *A. Schertzerianum Wardii*, being large and brightly flowered. Mr. Tudgey's second-prize groups comprised beautifully flowered but too neatly trained specimens of *Erica ventricosa magnifica*, *E. Cavendishiana*, *E. ventricosa coccinea minor*, *Dracophyllum gracile*, *Clerodendron Balfourianum*, and the above-mentioned *Anthuriums*. Mr. Biggs was a most creditable third, his collection including well-flowered examples of *Ixora Prince of Orange*, *Ixora Fraseri*, *Acrophyllum venosum*, and *Genetyllis Hookeri*. Mr. W. Long staged the best eight flowering plants, among these being good plants of *Ixora Williamsi*, *Pimelea mirabilis*, and a beautifully flowered *Rhododendron Gibsonii*. Mr. J. F. Mould secured the second prize with well-flowered specimens of *Azalea Perfection*, *Erica affinis*, and *Clerodendron Balfourianum* and others. Mr. E. H. Keel, gardener to Colonel Landon, worthily occupied the third position. Mr. J. E. Mould, gardener to G. E. Bryant, Esq., and Mr. G. Hallett, gardener to Mrs. West, were awarded the first and second prizes respectively for six stove and greenhouse flowering plants.

Mr. Tudgey, with a vigorous specimen of *Anthurium Andreanum* carrying three handsome spathes, secured the first prize for a stove plant not an Orchid, the second going to Mr. G. Tucker, gardener to Major W. P. Clarke, for a specimen of *Anthurium Schertzerianum Williamsi* carrying about twenty-four finely developed spathes. A plant of *Anthurium Andreanum* with one developed spathe won Mr. Cypher the first prize for the best new or rare plant, Mr. Tudgey occupying second position with *Anthurium Hendersoni* carrying three grand highly coloured spathes. Mr. W. F. Biggs staged the best greenhouse plant—a good example of *Genetyllis fuchsoides*, the second prize going to Mr. J. F. Mould.

Mr. Cypher again succeeded in defeating his formidable opponent in the class for twelve ornamental foliage plants, but by a very few points only. Included in the former's group were large healthy specimens of *Cycas revoluta*, *Phormium Veitchii*, *Yucca variegata*, *Geonoma pumila*, *Kentia Fosteriana*, *Dasyllirion acrotrichum*, and *Latania ruhra*. Mr. Tudgey's *Crotons*, though somewhat smaller, were better coloured, *C. Queen Victoria*, *C. Hanburyanus*, and *C. Mortii* being particularly good; in other respects the plants and varieties were very similar. Mr. Tudgey won the first prize for a specimen fine-foliage plant with a fair example of *Cocos Weddelliana*, Mr. Cypher occupying the second position. Mr. Cypher staged the best six *Ericas*, and was followed by Messrs. Tudgey and W. Long in the order named. Messrs. W. J. Mould, C. H. Keel, and W. C. Drummond were the successful competitors with three *Ericas*, and with a splendidly flowered plant of *E. Cavendishiana* Mr. Biggs well won first honours for a single specimen.

Mr. Cypher easily secured the premier award in the class for nine *Pelargoniums* with large specimens of *Triumph de St. Mandé*, *Madame Thibaut*, *Kingston Beauty*, *Duchesse de Morny*, *Emperor of Russia*, *Duchess of Edinburgh*, *Harlequin*, *Miss Bradshaw*, and *Edward Perkins*. Mr. G. Garraway was awarded the second prize. The best six specimens were staged by Mr. W. J. Mould, these including remarkably well-flowered examples of *Rose Celestial*, *Duchess of Edinburgh*, *Una*, and *Duchess of Bedford*. Mr. H. Jones, gardener to Gen. Doherty, and Mr. J. Mattock worthily occupied the second and third positions as named. Mr. W. F. Biggs was the only exhibitor of fancy *Pelargoniums*, and secured the first prize for good examples of *Godfrey Turner*, *Delicatum*, *Ellen Beck*, *Madame Sontag*, and others. Messrs. W. J. Mould, W. C. Biggs, and H. Jones took the prizes in the order named for spotted *Pelargoniums*, all staging creditably. *Calceolarias* were well staged by Messrs. W. Burridge, G. Howe, gardener to L. Fry, Esq., M.P., and H. Jones, who received the prizes in the order named. The best *Cinerarias* were staged by Mr. J. Southard, gardener to Gen. Hope; Mr. G. Garraway also showing creditably. Mr. J. F. Mould was the only exhibitor of *Roses* in pots. Among his first-prize collection were healthy well-flowered specimens of *Madame Lacharme*, *Etienne Levet*, *Madame Victor Verdier*, and *Comtesse d'Oxford*.

Several excellent groups of fifteen exotic Ferns were arranged; the best, by Mr. J. Coke, comprised good specimens of *Alsophila australis*, *Dicksonia squarrosa*, *Lomaria zamioides*, and *Dicksonia antarctica*. Mr. G. Smith, gardener to J. Kemp, Esq., was a close second, his group including good plants of *Gymnogramma chrysophylla*, *Asple-*

nium Belangeri, *Microlepia strigosa*, and *Platyserium alcorni*. Mr. W. C. Drummond was awarded the third prize. The best nine Ferns were staged by Mr. G. Tucker, gardener to Major Clarke, among these being creditable examples of *Asplenium nidus-avis*, *Gymnogramma sulphurea*, and *Adiantum farleyense*; and Mr. C. H. Keel occupied the second position, also staging well.

The cut flowers, notably Pansies, proved very attractive to the visitors. There were several good boxes of *Roses* staged; the best by Mr. J. Mattock, Oxford, included fine blooms of *Devoniensis*, *Marie Baumann*, *Souvenir d'un Ami*, *Bougère*, *Marie Van Houtte*, and *Maréchal Niel*. In Mr. R. B. Cater's second-prize stand were good blooms of *Alfred Colomb*, *Niphetos*, *Marquise de Castellane*, and *Rnhens*. Mr. Mattock also staged forty good blooms of *Maréchal Niel*. Mr. H. Hooper exhibited the best Tulips and twenty-four Pansies, and was followed in the first instance by Mr. W. Meddick, and in the latter by Mr. H. Catley, the exhibits of each being very creditable. Mr. A. T. Hall and Mr. Meddick were the successful exhibitors of twelve varieties of Pansies. The stands of twenty-four varieties of cut flowers in bunches were very choice and beautiful, notably those staged by Messrs. G. Howe, W. J. Mould, and Mrs. R. P. King, who received the awards in the order named. Hand bouquets were of average merit. The most elegant and lightly arranged was exhibited by Mr. M. Hookings, and those staged by Mrs. E. M. Hadden and Mr. T. King were good. The cottagers' bouquets were much too closely packed. Mr. M. Hookings had the most tastefully arranged epergne; a lightly filled basket by Mr. E. Thomas, and an epergne by Mr. J. Coke, gardener to A. P. Stancomb, Esq., also receiving awards.

Fruit was not largely shown. Mr. Miller staged the only Pine, a small Queen. The first-prize bunches of Black Hamburgh Grapes staged by Mr. T. King, gardener to R. V. Leach, Esq., were of good size, the berries even and well coloured; Mr. W. F. Brookman followed with creditable examples; the third prize going to Mr. F. Bright, gardener to S. A. Hayman, Esq. The Melons staged were quite green and received no award. Mr. W. Burridge, gardener to S. Butler, Esq., was the only exhibitor of Strawberries in pots, and was deservedly awarded the first prize for fine examples of Oscar. With this variety the same exhibitor occupied premier position for a dish of Strawberries, the second prize going to Mr. F. P. Cox. Apples were shown in good condition by several exhibitors. Mr. J. F. Walker secured first position with Court of Wick; Mr. G. Garraway followed with Blenheim Pippin; and the third prize was adjudged to Mr. W. Bush for a dish of Malakovna. Mr. W. Burridge was awarded the first prize for Pears of the variety Uvedale's St. Germain, Messrs. W. Bush and E. Hall following.

Vegetables were shown extensively, but were not particularly good. In Mr. W. Burridge's first-prize collection of nine varieties of vegetables were good Early Munich Turnips, Cooling's Ne Plus Ultra Kidney Beans, William I. Peas, Telegraph Cucumbers, Asparagus, Mona's Pride Potatoes, and Carter's Champion Broccoli. Mr. J. Weston, gardener to the Rev. C. C. Layard, followed, his tray containing among others good dishes of Suttons' Late Queen Broccoli and Wheeler's Imperial Cabbage; Mr. H. Scott took the third prize. The best six varieties were staged by Mr. F. Mead, gardener to J. F. Holmes, Esq., included in which were good dishes of Suttons' Late Queen Broccoli and Beauty of Hebron Potatoes. Mr. A. Beavis, Mr. W. Fisher, and Mr. H. Jones received the remaining prizes in this class. Cucumbers were extensively shown, Mr. H. Beavis taking the lead with Improved Telegraph; Messrs. G. Garraway, A. Hawkins, and W. Fisher also staging well. Messrs. G. Willshire, A. Hawkins, and A. Beavis were the successful exhibitors of Mushrooms; Messrs. Jones and W. Fisher of Kidney Beans; Messrs. W. Burridge, J. Garraway, and J. Weston of Peas; Messrs. W. Burridge, H. Jones, and M. Cole, gardener to R. B. Cater, Esq., of Potatoes; and Messrs. G. H. R. Westcott, M. Cole, and M. O'Brien of Asparagus, all staging creditably, and received the awards in the order named in each instance.

A long row of stands of cut double and single Pyrethrums sent by Messrs. Kelway & Co., Langport, deservedly attracted much attention from the visitors, few evidently being acquainted with these beautiful hardy plants. A good selection of the double varieties comprised Hohart Pasha, Ne Plus Ultra, Duchess of Edinburgh, W. Cropper, Galopin, Virginal, Captain Nares, Chamois, Jeanette, Captain Boyton, and J. N. Twerdy. Mr. Hooper of Bath also contributed several good Carnations, Pansies, and other hardy flowers.

Mr. R. King, the Chairman, and Mr. B. Pearson, the Secretary, and the Committee generally, deserve much credit for the manner in which they conduct their shows, and we congratulate them upon the success they have attained.

As far as my recollection and judgment go there is no public garden in England which can compare with the Sydney Gardens, Bath. The ground is so beautifully undulated, the trees are so large and judiciously planted, and the manner in which what might seem insuperable difficulties—viz., a railway and canal passing through the grounds—have been so not only overcome but utilised, that I do not think there is anything more complete in landscape gardening; and then on one of the loveliest days of this lovely spring (May 10th), when the Horse Chestnuts, Lilacs, Lahurnums, Bird Cherries, white and pink Thorns, double-flowering Cherries, &c., were all glowing in their beauty, the fresh tender foliage, which had in this sheltered

spot been comparatively unhurt by the fearful gale which did so much damage on the 28th of last month. It was a pleasant sight to see the gardens thronged with some seven thousand visitors who had come—some to see, and some to hear; to see the fine collection of plants and flowers, which in such a neighbourhood as Bath was sure to be brought together, and to hear the fine band of the Royal Marine Artillery and the local band of the Gardens Committee.

The cut Roses shown by Mr. Mattock of New Headingley, Oxford, and Mr. R. B. Cater of Bath were good as cut from pot plants. The former sent in a box of *Maréchal Niel*, which of course received the attention that gallant soldier always does. Mr. Hooper, being at home, sent, as well may be supposed, a grand collection of Pansies. The Fancy varieties were especially admired; and indeed their showy colours, large size now, fine form, deservedly attract all lovers of flowers. Messrs. Kelway & Sons showed some good boxes of cut blooms of *Pyrethrums* double and single, the latter more especially attracting the attention of ladies for their suitability for cutting for bouquets, &c. They were the same varieties that were exhibited at South Kensington on the previous day. They also exhibited a number of plants of the curious little *Hart's-tongue Fern*, *Scolopendrium vulgare* *Kelwayi densum*, which was certificated at South Kensington.

The zeal and energy of Mr. B. Pearson, the indefatigable Secretary of the Society, assisted as he was by a hard-working Committee, tended to make everything work well; and the smoothness with which the arrangements were carried out augurs well for those of the National Rose Society, whose promised Exhibition is to be held this year in the same place on June 28th.—D., Deal.

THE FLOWER GARDEN IN SPRING.

PERHAPS at no season of the year can beds and borders be made more attractive than during April and early May, but if the majority of plants that flower in spring are employed failure is sure to be the result. Those plants only should be selected that will flower abundantly and will last about the same length of time in good condition. It is most unfortunate if some uncertain variety is used and a break or failure occurs in any of the beds or borders. It is always wise to test plants in other positions before relying upon them in the flower garden.

To grow plants that are serviceable for this purpose but little ground is required that might prove useful for any other purpose. For instance, in the majority of gardens plenty of places can be found where spring-flowering plants can be grown through the summer, and if not occupied by them would in all probability be unemployed. What better position could be accorded them than under the shade of standard fruit trees, amongst bush fruit, or in open spaces at the back of shrubberies? These plants prove no detriment to the fruit trees if amongst them, or the trees to them, but, on the contrary, they are benefited by the partial shade afforded by the trees. There are few indeed who could not find such positions for such accommodating and beautiful flowering plants, and neither cottagers nor amateurs need fail in their cultivation. Hundreds of gardens could be found where no attempt is made to render them attractive in spring. I know many who, to have their gardens enjoyable during summer, spend many pounds, and the same number of shillings would render them delightful in spring. I must confess up to the present I have seen no style of bedding, not even the popular carpet beds, that can compare for beauty with spring bedding when well done.

Those anxious to have their gardens gay next spring should make a start at once, as much can be done in a season with comparatively little expense. The first that will require attention for that purpose are the *Aubrietias*, charming plants for spring bedding which can readily be raised from seed. The variety I employ is *Aubrietia græca*, seed of which should now be sown without delay; the best position for the seed bed being in a northern aspect or where the seedlings will not be fully exposed to the sun at first. I have frequently found when sown in a southern aspect the young plants are readily devoured by insects, but when sown in the former I have never had a failure. The best plan is to sow the seed moderately thick on the bed, and then prick out the seedlings as soon as they are large enough. If attended to at once fine tufts will be produced by autumn which in spring will bloom abundantly. Those having a good stock of this plant need not raise seedlings, but can replant their old plants after flowering. In planting, the flowering shoots and seedpods should be removed with a knife, and no attempt should be made to divide the plants. If planted whole, and the soil as the work proceeds pressed amongst the shoots, the whole will be one mass of roots and can safely be divided in autumn. The old plants are seldom used here a second year, because they require attention at a busy season, and the seedlings do not give trouble at that time when so many others require attention. Seedlings are preferable because they grow more luxuriantly, and with me bloom with greater freedom in spring.

Violas and Pansies also elaim immediate attention where a stock has to be raised. They are readily obtained either by cuttings, division, or from seed. The latter is the best where no stock of plants exists. The *Cliveden* type should be selected, as they flower profusely in spring, and seed should be sown at once of the purple, blue, white, and yellow forms. I have had Pansies moderately true from seed, and at another time have had from a few packets of seed a hundred or more varieties. Even where the latter is the case there can generally be sufficient light and dark sorts that will do for a good start, and from which a stock can afterwards be obtained by cuttings and division. From seed sown now the whole will commence flowering during the summer, and all worthless sorts can be thrown out.

Daisies, red, white, and two kinds of pink, should be obtained and grown in quantity. The two Pinks to which I allude are the common kind with large flowers, and the other deeper pink with small flowers and very dwarf. I have never had any name to this variety, but it is a gem in every respect and should have a prominent position in every spring garden.

Myosotis is useful for the spring garden if a dwarf variety is selected, and I have found none better than *M. dissitiflora* when true. The seed need not be sown until the last week in May or the first week in June, which is early enough, and to save trouble is best sown on the beds, where it can remain until planting time.

Pyrethrum Golden Feather can also be sown during the month of June, and will be large enough by autumn for marking out any designs, and when the winters are not too severe it proves very effective in spring. Here it does not stand well, the damp moist atmosphere of winter proving a greater detriment to it than sharp frosts. I have seen it used with advantage in the east and southern parts of England, but here I have abandoned growing it for the spring because it has disappointed me so frequently.

Silene pendula compacta is another valuable plant for spring gardens, and I know gardeners who grow it in preference to pink Daisies; but with me it has never given the greatest satisfaction. It has either failed or bloomed very irregularly, and in consequence I do not associate it with other plants in beds or borders that I require to have effective. It is, however, worth growing, and can be used with much advantage in many other positions. This must annually be raised from seed, and should not be sown too early: about the middle of June will do, as it grows quickly when the young plants are once above ground. This is a good summer annual, and if successional sowings are made flowering plants can be had all through the summer.

Arabises, *Alyssum saxatile compactum*, *Limnanthes*, and many others are useful for spring flowering, but it is not judicious to employ them in the flower garden proper, because some of them flower too early and would be seeding before Daisies and Violas reached their best.

The limited number of varieties alluded to will, if judiciously planted, render the flower garden in spring as gay and attractive as need be desired, especially if Tulips and Hyacinths are planted amongst them. In beds where the two latter are employed the Hyacinths are planted rather closely to be effective early in the season, and the same beds also contain a good number of Tulips, the groundwork being formed with different coloured Daisies or *Aubrietias*. When the Hyacinths are past their best they are removed, disturbing the beds as little as possible, which are soon after gay with both the plants used for the groundwork and the Tulips.

It must not be understood, because I have given only a limited selection of plants, that I would discard many others that are capable of rendering gardens bright in spring. There can always be found plenty of places suitable for them in gardens and grounds without cramming the whole into the flower garden. Those I have alluded to are grown here during the summer under the shade of fruit and other trees, the ground being prepared in early spring, and where practicable laid out in narrow beds. In preparing the beds a quantity of decayed leaves and mowings from the lawn that have laid for a time are forked in, and form by far the best manure for such plants. Daisies, *Aubrietias*, and others grow luxuriantly with it.—W. BARDNEY.

OLD YEWS.—In an article upon curious and historic trees published in the last issue of the "Journal of Forestry," much interesting information is given concerning the Yew, the following particulars of the oldest being especially worth notice:—"The Yew crops up in the buried forests of Cromer and the Bristol Channel. After waiting long, according to the reckoning of geologists, for the earliest appearance of man in those islands, it became the Cypress of Celts and Saxons, and still remains the fittest emblem of immortality that our climate has produced. The old Yews in churchyards are indeed historic, we have nothing older either in fact or sentiment.

The oldest bit of masonry in England is the Roman Pharos, on the Castle Hill at Dover, and that ancient lighthouse, 1600 or 1700 years old perhaps, is, for a ruin, in wonderful preservation. The Fortingal Yew is said to be 2500 years old, and De Candolle estimated the age of the Brabourne Yew in Kent at 3000 years old, making it contemporary with the building of Palmyra, and the visit of the Queen of Sheba to Solomon. As a sapling it had 1200 years to wait for the landing of Cæsar. The Darley Yew, Derbyshire, is believed to be 2000 years old; the Crowhurst Yew, Sussex, 1400 years old; the Fountain's Abbey Yews, Yorkshire, sheltered the builders of that great monastic establishment, and its founders held a council under their shade in A.D. 1132. The Yew Grove of Norbury Park, Surrey,

was standing at the time of the Druids. The Yews of Kingly Bottom, on the Downs near Chichester, stood there at the landing of the Vikings in Kent and Sussex. The Ankerwyke Yew witnessed—speaking metaphorically—the signing of Magna Charta in 1215. The Yew in the churchyard at Harlington, Middlesex, is more than 850 years old. But these are comparatively modern records.”

SELECT NARCISSI.

THE woodcut (fig. 81) represents another group of four pretty Narcissi from Messrs. Barr & Sugden's collection of distinct types,



Fig. 81.—NARCISSUSES.—1, LEELSI BEAUTY; 2, BURBIDGEI MARGINATUS; 3, AJAX SHIRLEY HIBBERD; 4, BARRI J. G. READ.

and remarkable for the neatness of their flowers and the clearness of the colours. 1, Leedsi Beauty is a charming representative of another distinct group of hybrids, chiefly the result of crossing incomparabilis albus with montanus. The petals are white, the crown being of a most delicate but an extremely pale creamy yellow. 2, Burbidgei marginatus is one of a beautiful group of hybrids, upon which has been bestowed the name of Mr. F. W. Burbidge, Curator of the Trinity College Botanic Gardens, Dublin. They are nearly related to the ever-admired N. poeticus type, but

also possess some of the incomparabilis characters. They are rather earlier than the poeticus forms, and the crown is usually less shallow, and the margin more richly coloured. The form shown in the cut has pure white oval petals, the crown being creamy yellow tipped with orange, inclining to scarlet. 3, Ajax Shirley Hibberd is a handsome form of the large trumpet-crowned section, very noble and imposing in appearance. The petals are pale yellow, oval, and spreading, the deep crown being light clear orange. 4, Barri J. G. Read is of the same type as that figured

last week—viz., *Barri conspicuus*, and is scarcely less beautiful. It has pale yellow ovate reflexed petals, and a shallow open bright orange crown.

Of several excellent varieties submitted to us by Mr. Ware from his large and choice collection we select the following dozen as especially worthy of notice:—*Incomparabilis sulphureus* and *aurantius fl.-pl.*, *odorus minor fl.-pl.*, *bicolor maximus*, *abscissus biflorus*, *Macleayi*, *Nelsoni*, *Poeticus poetarum* and *ornatus*, *intermedius bifrons*, and *Bulbocodium*, all these being varieties of great merit.

A VISIT TO SUDBURY HOUSE, HAMMERSMITH.

CALLING at this establishment the other morning I was much interested in what I saw when shown through the houses by the kind proprietor, J. T. Peacock, Esq., and the following are some of the plants I especially noted. Entering the garden from the house, and passing a well-kept lawn the beds on which were gay with Daffodils and other spring flowers, we first inspected the Agaves which are grown in a large span-roof house 50 feet long by 20 wide. Near the door is a fine specimen of *Cereus peruvianus* nearly reaching to the roof. On the stage in the centre are noble specimens of *Agave applanata*, *A. potatorum*, *A. Hookerii*, *A. Ellemetiana*, *A. ferox*, *A. Warelliana*, *A. Peacockii*, *A. americana fol. lutea striata*, *Aloe cæsia Thraski*, *A. Salm Dyckiana*, *Opuntia monacantha*, and many others. Leaving the Agaves we entered the Aloe and the Cactus house. In the former are good examples of *Aloe ferox*, *A. arborescens*, *A. nobilis densa*, *A. soccotrina*, *A. microstigma*, *A. Bainesii*, *A. abyssinica*, *A. Greenii*, and others of the same genus. Here also are large collections of *Haworthias* and *Gasterias*. In the Cactus house is a very fine specimen of *Cereus peruvianus monstrosus*, also *C. chilensis*, *C. lividus*, *C. macrogonus*, and *C. Jamacara*, with good collections of *Echinocactus*, *Echinopsis*, *Euphorbias*, and *Mammillarias*.

A large collection of Bromeliads is grown in a stove, among which are *Lomatophyllum Saundersii*, *Tillandsia Lindenii*, *Guzmania picta*, *Vriesia speciosa*, *V. tessellata*, *V. regina*, and others, also good specimens of *Hyophorbe* and other Palms, *Alocasia zebrina*, and fine pots of *Eucharis amazonica*. Hanging from the roof is a fine collection of *Phalænopsis* in good healthy condition, and equally at home on a shelf near the glass are a large number of *Cypripedium niveum* and *Calanthes* making fine growths. The wall on one side of this house is covered with a fine plant of *Hoya carnosæ*.

The Camellia house contains fine healthy plants of the best varieties planted out in a bed in the centre. Mr. Peacock intends planting specimens of *Lapageria rosea* between the Camellia bushes, which when in flower will have a very pretty effect. Hanging close under the roof are upwards of a hundred plants of *Lælia majalis*, and the side stages are filled with fine specimens of *Cypripedium insigne* and *Maulei*.

In the greenhouse at the present there is a mixed collection of plants. Amongst them are good specimens of *Beaucarnea recurvata*, *Euphorbia splendens*, *E. grandidens*, and others. On the south side trained to the roof are strong plants of Tea Roses, two of which, *Gloire de Dijon* and *Climbing Devoniensis*, are now carrying hundreds of fragrant blooms. On the north side trained to the roof is a very strong plant of *Lapageria rosea*.

Orchids are abundant and very satisfactory in all departments. The Cattleyas are distinguished by robust health and vigour, broad leaves, and stout pseudo-bulbs. The principal kinds are *C. Mendellii*, *C. Trianae*, *C. Trianae atalanta*, *C. chocoensis*, *C. Ruckerii*, and a number of other fine species. *Cypripediums* and *Odontoglossums* have houses devoted to them. In the former fine plants are in flower, among them being the rare *C. insigne Chantini*, *C. villosum*, *C. Boxallii*, *C. Warneri*, *C. Argus*, *C. barbatum*, and varieties. Here are also a collection of *Oncidium*s; among them are two hundred plants of *O. Krameri*, many of which are in flower. *O. sphacclatum*, *O. ampliatum majus*, *O. cucullatum*, and others of the same genus in flower. The *Odontoglossums* are in robust condition, those in flower being chiefly strong pieces of *O. cirrhosum*, *O. maculatum superbum*, *O. pulchellum*, *O. polyanthum*, and *O. cirrhosum Klabochozum*, also *Oncidium trilingue*, *O. concolor*, *O. cucullatum*, and *Ada aurantiaca*.

In a large span-roof stove is a mixed collection of Orchids and plants. Among the former are *Dendrobium Falconeri* with pseudo-bulbs upwards of 3 feet long, flowering well; *Zygopetalum crinitum* in flower. Here are four hundred pieces of *Odontoglossum Roezlii*, a hundred of *O. Phalænopsis*, all making strong growths, a collection of *Stanhopeas*, a number of *Cattleya citrina*, many of them in flower, and a good batch of *Gardenias*. A small lean-to house 50 feet long by 8 wide with a west aspect is filled with *Masdevallias*. Here are from three hundred to four hundred of these charming plants in strong healthy condition. Among those

in flower are *M. Harryana*, *M. Lindenii*, *M. Veitchii*, *M. Wagneriana*, *M. coriacea*, *M. tovarense*, and others. The next is a lean-to house 160 feet long by 10 wide divided into three compartments, the first of which is an intermediate temperature. On the front stage is a fine batch of *Odontoglossum vexillarium*, a picture of robust health, a batch of *Pleiones* making strong growths. There are in flower fine pieces of *Phalænopsis Wallichii* and *grandiflorum*, *Oncidium sarcodes*, *O. serratum*, and *O. Weltoni*, *Miltonia cruenta*, *Trichopilia suavis*, and the sweet *Epidendrum fragrans*. In the second division are collections of *Vandas*, *Aerides*, and *Saccolabiums*, a dozen or more fine plants of *Angræcum sesquipedale*, a batch of *Odontoglossum Roezlii*, with a piece of *O. Roezlii album* having seven fine flowers open at once, also several good specimens of *Anthurium Schertzerianum*, *A. Williamsii*, and *A. Andreanum*. The third division is filled with *Odontoglossums*. Here are thousands of *O. Alexandræ* and its varieties, all in robust health; while in flower are many pieces of *O. Halli*, *O. bictoniense*, *O. Pescatorei*, *O. triumphans*, *O. Bluntii*, *O. gloriosum*, *O. cirrhosum*, and *O. crispum*, *Masdevallia Backhousiana* and *M. bella*.

On the opposite side of the garden with an eastern aspect is a house of the same dimensions, and also divided into three compartments. In the first division are fine batches of *Odontoglossum Saundersianum*, *O. Alexandræ*, *Epidendrum vitellinum majus*, *Cœlogyne cristata*, and *Lycastes*. In flower are plants of *Cœlogyne ocellata*, *Sophranitis grandiflora*, *Odontoglossum Rossii majus*, *O. Edwardsii*, *Leptotes bicolor*, and *Lycaste Skinnerii*, with some very pretty varieties. In the second division is a collection of *Dendrobiums*. In flower are pieces of *D. nobile*, *D. macrophyllum giganteum*, *D. Jenkinsonii*, *D. Wardianum*; *D. chrysotoxum superbum*, *D. Dalhousianum*, *D. Pierardii*, *D. Cambridgeanum*, *D. crassinode*, and *D. crepidatum*. In the third division the principal Orchids were a part of Mr. Russell's collection, lately purchased by Mr. Peacock at the sale.

The above are but a few of the many gems which are to be found in this fine collection. Mr. Peacock has been long known to the horticultural world as one of the principal cultivators of succulents, and his Orchids have been collected from almost every importation for the last six or seven years, as well as from almost every private collection that has been sold. The general condition of the place, and the health of the collections of plants, reflects the highest credit on Mr. Vicary, the able head gardener.—W. COOMBER, *Royal Botanic Gardens, Regent's Park*.

SILKWORMS AND SILKWORM REARING.—9.

(Continued from page 328.)

INSECTS, placed upon their food plants and displayed to the public gaze in natural circumstances so far as this is possible, are amongst the attractions of some resorts that profess to be semi-scientific. At such there have occasionally been exhibited silkworms living at home upon their favourite Mulberry, and allowed to feed upon it wherever they please, and form their cocoons upon its branches. This is all very well for show, but in practice, and on a large scale, silkworms could not be advantageously fed in this manner. When rearing some of our British species of the order *Lepidoptera* it is found to be desirable, in order to maintain a supply of fresh food, that the caterpillars shall have the range of suitable plants in a growing state, or be put upon branches that are kept in water till the leaves have been stripped. It is not requisite to pursue such a plan with the silkworm (*Bombyx Mori*), since it thrives upon picked leaves of the Mulberry, but in the case of several of the "new" silkworms it has been tried successfully.

We have already stated that those qualified to judge have very emphatically given it as their opinion that the rearing of silkworms could be made an important branch of industry in these islands. Both the caterpillars of *B. Mori* and their principal food, the Mulberry tree, subsist as well under our changeable skies as in other temperate climates; but of course the former need to be housed, and to have their temperature and moisture of their abode duly regulated. The extension of the Mulberry must be persevered with through all suitable localities, and it is important to have the co-operation of those who are interested in horticulture, nurserymen especially; for if these who do not by-and-by themselves experiment in silkworm-rearing, as we have hinted they might easily do, they might add to their returns by the sale of the leaves of the Mulberry during the silkworm season, supposing they had plantations of this tree. At present the difficulty of obtaining these leaves prevents some persons from keeping silkworms who would otherwise take up the pursuit, since rearing them upon Lettuce is seldom satisfactory, even on a small scale. It should be noted, however, that where the leaves of the Mulberry cannot be had daily fresh-picked, they may be stored, if received from a

distance, by placing them in single layers with damp cloths between them, and keeping them in a cool place. The work of feeding and tending silkworms may be quite as well performed by women as by men, and indeed children might possibly be educated to do it satisfactorily. Schoolboys, as we all know, have had for some years past much of the English silkworm-rearing in their hands.

Only a very few "magnaneries" or apartments devoted to the rearing of silkworms have been described in England. Dr. Wallace, who has written much upon various silkworms, had one of these at Colchester, which was somewhat elaborately constructed. This room was 20 feet long, 15 feet broad, and 11 feet high, connected on the south side with a less room, beyond which was a greenhouse, so that on suitable days a current of fresh air, sun-warmed, could be introduced. An Arnott's stove fitted with an Arnott's



Fig. 82.—Silkworms at Home.

ventilator was in the room, and a fire lit each evening, which, made up at 10 P.M., could be left all right unattended to. In addition to this he had a Mussett's gas-boiler, with a horizontal coil of four pieces at one end of the room, heated by two atmospheric burners. From the gas apparatus extra heat was obtained if requisite, also it was occasionally used instead of the Arnott's stove. The temperature in the room was duly watched, and its humidity regulated by the aid of a small hygrometer, for silkworms do not thrive when the air is too damp, which it may easily become from the moisture of the leaves. About 25 of the hygrometer is a good average to maintain.

But any room, not too surrounded by other rooms, might be adapted for this purpose, and in some cases there would be no difficulty in warming it as might be requisite by the source from which heat is given to a hothouse or conservatory adjacent. Rooms with open fireplaces do very well; such are in frequent use throughout the silkworm districts on the continent. Under the ordinary circumstances of our English summer, silkworms, whose life extends from May through June, including part of July, would have to endure some great variations of temperature if no precautions were taken for their benefit. Artificial warmth on many nights, and on some cloudy days, needs to be supplied; any excess of

heat, natural or artificial, must be guarded against. The adjustment of ventilation is another important matter, since it is always desirable to avoid letting air into the silkworms' room, which is either cold or loaded with particles of moisture. One of the older naturalists seems to have been of the opinion that silkworms (or other caterpillars that we may be nurturing) require to be protected from the injurious effects of—noise! And Rennie argues in one of his books that caterpillars have the sense of hearing, since he observed that a party of sociable ones upon a bush all moved their heads in the direction from which a sudden report proceeded. It might certainly be as well to avoid a place for breeding which is liable to either loud noises or violent concussions, and strong odours of any kind would be prejudicial to the worms. There have been instances of silkworm trays being attacked by wasps, which stung a number of them to death. And having once put in the open air a tray containing some of the moths engaged in laying eggs, during my brief absence several sparrows swooped down upon them and carried off nearly all.

There have as yet been few persons in England who have reared silkworms by thousands or tens of thousands, so that the methods practised in France and Italy, and necessarily imitated here to some extent, have not been fairly tested by us. Both the nets and the perforated paper, or papier filets, in requisition abroad, have been tried here, our continental friends now generally giving preference to the latter, which are cheap, and stamped by machinery with holes of four sizes to suit the various ages of worms. Against these papers it may be alleged that they become soiled and damp, therefore frequent fresh supplies are required. Nets, of which the smaller are machine-made, the larger made by hand, would cost rather more, but they can be washed from time to time, and Dr. Wallace gives his testimony in their favour. He recommends the employment of a small leaf-cutting machine, on the principle of a chaff-cutter, at least as the worms grow and begin to be more voracious; while they are quite small the leaves can be snipped up with scissors. After the silkworms have passed the last change of skin it is customary in all the magnaneries to give them the leaves whole. For my part, I must say that in the range of my experiments it has not proved of particular advantage to cut the leaves in pieces, except during what may be called the period of infancy. Shelves may be placed round the walls of a room, but the worms that are in the trays upon them do not receive full benefits of the ventilation given, and probably moveable stands of wood are better, upon which there can be adjusted shallow boxes, or wicker baskets, or trays of stout paper.—J. R. S. C.

ROYAL BOTANIC SOCIETY.

MAY 17TH.

THE first summer Show of the year at Regent's Park proved a great success in every respect; the weather was exceptionally favourable, the plants numerous, and the general arrangements all that could be desired. Though in some of the classes the competition has been keener on previous occasions the chief prizes were well contested, and all the exhibits were highly satisfactory in quality. We can only give a brief review of the chief features.

Stove and Greenhouse Plants.—These were remarkably well shown, the competition being close in all the chief classes. In the nursery-men's class for twelve specimens Mr. J. Cypher, Cheltenham, was adjudged the first prize for a very even and beautiful collection, all the plants being healthy and well flowered. Messrs. T. Jackson and Son, Kingston, gained the second position with beautiful specimens of *Pimelea mirabilis*, *Rhododendron Dalhousianum*, *Erica affinis*, and others. Messrs. B. Peed & Son, Streatham, were third with neat and well-flowered specimens, *Statice profusa* and *Anthurium Schertzerianum* being especially fine. In the amateurs' class for ten specimens Mr. E. Tudgey, gardener to J. H. Greswolde Williams, Esq., Henwick Grange, Worcester, secured the leading prize with a very handsome collection, including grand examples of *Erica ventricosa magnifica*, *Azalea magnifica*, *Erica Cavendishii*, *Dracophyllum gracile*, and others of similar quality; Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was second with large specimens; and Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, followed with smaller but healthy examples.

In the amateurs' class for six Mr. Chapman was the most successful exhibitor, having excellent plants of *Azalea Iveryana*, *Ixora Williamsi*, and *Erica Cavendishii*, very well flowered; Mr. E. Tudgey was a very close second, his plants including good examples of *Erica ventricosa magnifica* and *Anthurium Andreanum*; Mr. J. Child followed. Messrs. B. Peed & Son were placed first in the corresponding

nurserymen's class with very neat healthy plants, *Statice profusa* and *Anthurium Schertzerianum* being the two best. Mr. J. Cypher followed closely with very good specimens. An extra prize was adjudged to Messrs. T. Jackson & Son for good well-flowered plants.

Azaleas.—The leading prize for six in the nurserymen's class was accorded to Mr. C. Turner, Slough, for globular and pyramidal specimens of *Duc de Nassau*, *Comtesse de Flandres*, *Reine des Fleurs*, *Chelsoni*, *Etendard de Flandres*, and *Madame de Cannart d'Hamale*; Mr. H. James, Castle Nursery, Norwood, took the third position. In the amateurs' class for six, Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, was an excellent first; Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, taking the second prize, both with profusely flowered specimens of moderate size. In the amateurs' class for six plants in 12-inch pots Mr. A. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, was first; and Mr. Child followed closely with neat specimens. In the open class for twelve *Azaleas* Mr. C. Turner was adjudged the first prize for a superb collection of healthy plants; Mr. Ratty was second with extremely well-flowered examples of *Duc de Brahan*, *Charmer*, *Crotteriana*, and others; Messrs. B. Peck and Sons secured the third place with small plants.

Roses.—For nine *Roses* in pots Messrs. Paul & Son, Cheshunt, were awarded chief honours for magnificent specimens in excellent condition. The central plant of *Charles Lawson* was extremely fine, 8 or 9 feet high and as much in diameter, and flowering profusely. *Victor Verdier* was of similar dimensions; *Perfection de Monplaisir*, *Madame de St. Joseph*, and *Anna Alexieff* being also very good. Mr. J. F. Mould, Pewsey, was third with small plants. For twenty *Roses* in 8-inch pots Mr. C. Turner was adjudged the first honours for healthy little plants of the best varieties, most of them well flowered. Messrs. G. Paul & Son followed very closely with similar specimens. Mr. Wiggins, gardener to H. Little, Esq., Hillingdon, was second with fair plants, but small.

Orchids.—As usual these formed a beautiful bank, one of the most attractive features of the Show. In the amateurs' class for twelve plants Mr. C. Coningsby, gardener to C. Dorman, Esq., The Firs, Sydenham, was accorded the chief honours for a very handsome collection, in which the most noticeable plant was *Odontoglossum vexillarium*, 4 feet in diameter, and bearing some dozens of flowers. *Oncidium concolor*, *Masdevallia Harryana*, *Dendrobium Falconeri*, *Cattleya Skinneri alba*, *Cattleya Mendeli*, and several others, equally choice and well-grown plants. Mr. J. Douglas was a good second with fine examples of *Cypripedium villosum*, *Dendrobium nobile*, *D. Falconeri*, and several *Odontoglossums*. Mr. A. E. Catt, gardener to W. Cobb, Esq., Sydenham, was a close third, *Vanda cærulea* *Boxalli* being especially noteworthy. An extra prize was awarded to Mr. Child for healthy plants.

In the nurserymen's class for twelve Mr. H. James, Norwood, secured the leading position with profusely flowered specimens of *Odontoglossum citrosum*, *Cypripedium niveum*, *Oncidium Marshallianum*, and others. Messrs. T. Jackson & Sons were second with a very fair collection of small plants.

Fine-foliage Plants.—Mr. C. Rann was the chief exhibitor in the amateurs' class for six specimens, and worthily secured the leading prize for very large and handsome plants, *Croton interruptus*, *Areca sapida*, and others being fine. Mr. Tudgey was second with grand examples of *Latania borbonica* and *Cycas circinalis*, with several *Crotons* and *Cordylines* in good condition. Mr. G. Wheeler was third chiefly with large and handsome *Palms*. An extra prize was awarded to Mr. R. Butler, gardener to H. H. Gibbs, Esq., Regent's Park. In the nurserymen's class for six Mr. J. Cypher took the lead with a handsome collection, comprising a gigantic specimen of *Latania borbonica* and a healthy *Gleichenia Mendeli*. Mr. H. James and Messrs. Hooper & Co., Covent Garden, were placed second and third respectively. An extra prize was awarded to Mr. J. F. Mould for a pretty collection.

Ferns.—A beautiful collection was staged in the amateurs' class for six by Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, the plants comprising handsome healthy examples of *Dicksonia antarctica*, *Dicksonia fibrosa*, and several *Adiantums*. Mr. G. Wheeler was a good second, and Mr. R. Butler was third with well-grown plants; and Mr. H. James secured the second prize in the nurserymen's class with fresh healthy specimens. *Ericas* were not largely shown. In the amateurs' class for six Mr. Tudgey gained the chief award with well-flowered specimens of moderate size; Mr. G. Wheeler was third. Messrs. B. Peck were the only exhibitors in the nurserymen's class, having neat specimens well flowered. *Pelargoniums* were well shown by Messrs. Cypher, Turner, James, Wiggins, G. W. Griffin, gardener to J. Wilcocks, Esq., Forest Hill, and C. Hammond, gardener to F. Hunt, Esq., Stamford Hill. All the plants were well flowered and evenly trained. For hardy plants Mr. J. Douglas, Messrs. Hooper & Co., and J. Carter & Co. were the prizetakers with choice collections. In the class for *Gloxinias* Mr. T. Lambert, gardener to S. White, Esq., Mr. Ratty, and Mr. Griffin were the prizewinners in that order.

Miscellaneous.—The groups from nurserymen and others not in competition were very beautiful, and contributed largely to the success of the Exhibition as regards the effect.

Messrs. J. Veitch & Sons, Chelsea, were awarded a silver medal for an extensive and handsome collection of Japanese *Maples* with cut blooms of *Rhododendrons* and hardy *Azaleas*. A similar award was granted to Mr. B. S. Williams, Upper Holloway, for a large group of choice *Orchids* and new plants very tastefully arranged.

The same recognition was worthily accorded to Messrs. W. Paul & Son, Waltham Cross, for a beautiful group of *Roses*, comprising a large number of plants mostly well flowered.

Messrs. J. Laing & Co., Forest Hill, also were adjudged a silver medal for a group of miscellaneous fine-foliage and flowering plants, including many novelties.

Messrs. George Jackman & Son, Woking, contributed a most handsome collection of *Clematises*, the flowers being of surprising size. The best of the single varieties were *Mrs. G. Jackman*, white; *Madame Van Houtte*, creamy white; *alba magna*, very large; *Henryi*, French white, large. Of the purples the best were *Lady C. Nevill*, *Exeelsior*, *purpurea elegans*, *Blue Gem*, and *Robert Hanbury*. The best doubles were *Duchess of Edinburgh* and *Lucie Lemoine*, white; and *Countess of Lovelace*, purple. A silver gilt medal was awarded. The following exhibitors were also granted bronze medals:—Mr. W. Rumsey, Waltham Cross, for collection of *Roses*; Hooper & Co. for *Pansies*; Kelway & Sons, Langport, for *Pyrethums* and *Pæonies*; Messrs. J. Carter & Co., Holborn, for a choice collection of hardy plants; a large bronze medal to Mr. J. Golder, gardener to G. J. Lea, Esq., Hampstead, for a collection of handsome *Adiantums*.

Numerous plants were certificated, and will be described in a future issue.

In the afternoon the Princess of Wales, the Duke and Duchess of Teck, and a large number of distinguished persons visited the Exhibition.



KITCHEN GARDEN.

MAKE preparation for sowing late *Peas*, selecting well-enriched ground, or in poor shallow soils sow the seed over manure in the trenches prepared as for *Celery*, returning the soil to the trenches before sowing. The most reliable kinds are *Ne Plus Ultra* and *Emperor of the Marrows* in the tall varieties, and of the medium-height sorts *Stratagem* and *Best of All*. These should be sown without delay, and followed by another similar sowing in a fortnight's time, the quantity being proportionate to the probable requirements of each establishment. A sowing should also be made of *Broad Beans* according to the requirements, and this in most instances will be the last sowing of the season. Early *Peas* will in dry weather require copious supplies of water, especially those on south borders and at the foot of walls. Attend to sticking successive crops of these, and dusting them whilst damp with soot, quicklime, or dry wood ashes, as a preventive of the attacks of slugs and sparrows. Similar attention will be needed by seed beds of *Broccoli* and *Turnips* to prevent the ravages of the *Turnip fly*. Make successive sowing of *Turnips*, watering well those advanced whenever the soil becomes dry, and apply the same treatment to all advanced crops in warm situations. Lettuce seed after this time should be sown in drills, and the seedlings thinned to avoid transplanting. Cauliflowers from early sowings will soon be fit for planting out, and good breadths should be placed out as soon as the plants are fit, especially of *Autumn Giant* and *Eclipse*.

HARDY FRUIT GARDEN.

Peaches and Nectarines.—Attention in disbudding these will be needed, commencing with the most forward growths, and partially, so as not to check the action of the sap by the removal of a large amount of growth at once. Disbudding is an operation requiring some care and judgment to supply the tree with young shoots for next season, it being borne in mind that the *Peach* and *Nectarine* bear on the wood of the previous season. Retain a well-placed shoot at the base of the present bearing shoot and another at its extremity, at least above or on a level with the fruit, in order to secure to the fruit the full benefit of the sap. This latter growth—i.e., above the fruit, may be stopped when a few inches long unless required to extend for filling space. Keep a sharp look-out for aphides, and promptly apply an insecticide upon their first appearance.

FRUIT HOUSES.

Vines.—In fine sunny weather increase the ventilation for the benefit of the foliage, which in a close confined atmosphere has a sickly hue, and is thin in texture. Early closing likewise should be attended to, not only to economise fuel, but to afford the *Vines* as

long a growth as possible whilst the light lasts, sun heat being better for the health of the Vines. Excessive fire heat is highly injurious. Former instructions as to thinning, stopping, disbudding, and tying are still applicable. Remove all superfluous growth and bunches as soon as the number to be left on a Vine is decided. Assist Vines having crops swelling off with plentiful supplies of liquid manure, and maintain a moist genial condition of the atmosphere. Inside borders if well drained should receive abundant supplies of water when the Vines are in active growth. The borders of succession houses should be examined weekly and watered copiously when dry, liquid manure being given at every alternate application. Where the Grapes are ripening a circulation of warm air should be provided constantly, and moderate air moisture afforded for the benefit of the foliage. Where the Grapes are ripe the temperature may be allowed to fall to 60° at night, and the border must be kept in a moist condition. Stop the laterals closely unless the Vines are weak and are infested with red spider or thrips, and then it is advisable to allow them to extend, and as soon as the Grapes are cleared thoroughly cleanse the foliage with the garden engine. Outside borders will not yet need artificial watering. Newly planted Vines should be closely watched that they do not suffer from over-dryness. Maintain a genial condition of the atmosphere by damping available surfaces frequently and syringing the Vines at closing time. In training allow all the growth to remain that can be exposed to light, but any intended to fruit as supernumeraries next season should have the laterals closely pinched and be confined to one rod.

Cucumbers.—Upon the first appearance of aphides fumigate, and for red spider dress the hot-water pipes thinly with a cream formed of flowers of sulphur and skim milk; the pipes being heated to over 160° will cause fumes to be given off fatal to that insect. Let the supply of moisture and ventilation be increased according to the increase of light and heat. Houses facing due south will require shading at midday, which must, however, be regulated according to the intensity of the sun heat and its duration. Span-roofed houses facing east and west are best for summer work, as no shading, or but little, is necessary. Beds that have been made some time and are becoming exhausted should be thoroughly renovated, pressing the soil down tightly. In regard to watering take care that the plants suffer no lack, being careful that it be about the same temperature as that of the bed in which they are growing. Plants that have been bearing all the winter and are showing signs of weakness, having stunted and short fruits, had better be removed, young plants being placed out at once. Assist young plants which show signs of weakness by removing all the male flowers and the first fruits, stopping frequently at every third or fourth joint, and remove all weakly and superfluous growths. Syringe moderately between 3 and 4 P.M., and employ plenty of water about the floors in hot weather. Little or no fire heat will now be requisite by day. The valves should be closed about 8 A.M., and opened again about 5 P.M. In pits and frames, if the plants are healthy, they will hardly need shading at present. Supply tepid water through a fine rose over the foliage about 3 P.M., closing the lights at the same time. Sow seed for succession. Stopping, training, and earthing-up must also be regularly attended to.

Melons.—Directly it is perceived that any of the fruits begin to change for ripening water should be withheld, but not allowing the plants to flag, and the temperature should be increased about 5°, the atmospheric moisture being reduced. Continue fertilising the pistillate flowers on successional plants, at the same time remove the points of shoots one or two joints beyond the fruit. Syringe freely about 3 P.M. in hot weather all plants bearing swelling fruit, and damp the floors several times a day. Shade only to prevent flagging, and ventilate freely in favourable weather. Fumigate as necessity arises, but not whilst the fruits are swelling.

Figs.—The earliest crop of these are advanced towards maturity, and the chief object will now be ripening and colouring the fruit. Onwards from this time until the crop is perfected and cleared a little ventilation should be given constantly at the top of the house, and a free circulation of warm air on all favourable occasions should be afforded, which is of the highest importance in improving the quality

of the fruit. Cease syringing the trees, and avoid a superabundance of moisture about the house. The borders being attended to in mulching and watering as before advised, they will in most cases maintain sufficient moisture until the crop of Figs is gathered; but if the borders are small water may be necessary, for on no account must the roots lack moisture so as to affect the foliage injuriously. Do not gather the fruit for home consumption until it is perfectly ripe, but any that have to be packed may be gathered earlier. Attend to stopping and tying-in as advised in former calendars. Very early crops of Figs from trees in pots of the early varieties are now ripe. The trees must not suffer from neglect in watering, and as soon as the ripe Figs are gathered syringe the trees twice daily, and if attacked with red spider brush the leaves carefully on the under side with an approved insecticide. If the second crop of fruit be very large part of it should be removed, or the energies of the trees will be impaired, probably so much so as to unfit them for early forcing another season.

THE BEE-KEEPER.

BEE-KEEPING FOR BEGINNERS.—No. 4.

QUEENS, WORKERS, DRONES.

YOUNG apiarians should know as much of the natural history or habits of queens, workers, and drones as can be gained by a little reading and study. "Knowledge is power," and the more one knows of the inhabitants of a bee hive the more competent he becomes for managing it well; besides, bee-keeping gives greater pleasures to the wise and thoughtful than to the ignorant.

Mr. Raitt says, "If the queen bee is the most important individual in the hive the worker is far more important in the economy of Nature. It is the typical bee for whom queens and drones exist, and without the workers they would cease to be. The workers are the active agents in all the offices which bees seem specially destined to fill in the economy of Nature. It is to them we mainly look for our supplies of honey and wax, and a knowledge of their peculiar instincts is therefore necessary among all who would undertake their management."

While this is true it is equally true that both queens and drones have important functions to perform as well as workers—that there is mutual dependance, and that the welfare of hives depends on the fulfilment of the offices of the three bees—queen, male, worker.

THE QUEEN is mother if not monarch of the whole community. She lays all the eggs. At certain seasons their number is great—about two thousand a day. As a queen bee lives four years, and working bees live only nine months, she is the mother of many generations. A bee so prolific, and so burdened with the weight of eggs while moving up and down the combs and from one comb to another to deposit her eggs day after day and month after month, must require good feeding in the height of the season. The office and work of the queen is not that of a sinecure. We have always held that she is the hardest-worked bee in the community, and has the least time for rest. Mr. Raitt thinks that she has not time to eat and digest her food: that the bees eat it for her, half digest it, and give it to her in this state. If this is a fact—and we have no disposition to question it—it presents to view a feature of bee life very wonderful. In the eye of her own people a queen bee is an important creature; they value her very highly. Her presence in the hive is almost everything to them.

Queens are in their cradle cells fourteen days—that is to say, they are reared from eggs to perfect insects in fourteen days. The history of their birth may not be uninteresting to beginners. On coming to perfection in their cells they announce their intentions to claim the throne, and in doing so they make a little fuss and tumult before they come out of their cells. They make strange noises, which bee-keepers call "piping." When bees want to rear a queen they generally rear three or four at once. The queen that comes to perfection first calls "off, off, off" several times. If no other queen responds or answers her in the same language she leaves her cell, becomes the queen of the hive, and begins to pipe in tones more sharp and shrill, which sound like "pe, pe, pe," or rather "paay, paay, paay," spoken by the human voice. Other queens arrive at perfection and call "off, off, off," and these sounds provoke the reigning queen very much, and she tries to find and kill her rivals. In the swarming season this tumult and noise continues three days and nights, the bees preventing a collision between the young queens. This piping or

pageant of young queens is curious, but no one can tell what it is for. I have known it continue for eight days, night and day, and have believed, and do believe now, that during the whole time the young princesses never slept for a moment. More may be said about young queens when we come to consider swarming. When queens are young, say from four to ten days old, they leave their hives for mating purposes. They may be seen for two or three days about noon coming out for this purpose and returning to their hives. If successful in meeting drones they never leave their hives again but on swarming occasions.

A queen bee is graceful in appearance and queenly in all her ways. Though she has a sting she is never provoked to use it but on the occasion of meeting a rival queen. Royalty in a bee hive will tolerate no rival royalty. No contest of men or brutes can be more savage or deadly than that of rival queen bees. In all queen battles it is death or victory; sometimes both combatants are killed. It has been said above that a queen bee lives four years. Some die at the age of three years; very few live longer than four years. I have never known one go two months beyond the allotted time. When in the third year of their age their abdomens become darker in colour, and in the last year of their lives their abdomens become darker still, and strikingly pointed or more tapering. In their last year some of them lose the power of flight, their wings fail them; in others their feet fail them—they stagger in their gait and can hardly walk at all. Some in their dotage are dethroned and cast out of their hives. The bees know that the queens cannot be of any more use in the hive, and may die at a time when no eggs are in the combs; hence they set eggs in royal cells, and before a successor is born the old queen is dethroned and pushed aside. The bees have good reasons for acting as they do in this matter. Young bee-keepers will do well to remember that experienced apiarians endeavour to have no old queens in their apiaries, as they know that it is a stroke of good policy to cast aside old queens and put young ones in their places in a manner acceptable to the bees. In another letter workers and drones will receive a passing notice.—A. PETTIGREW, *Bowdon*.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, Chelsea.—*List of Bedding Plants*.
E. G. Henderson & Son, Maida Vale, W.—*Catalogue of Plants*.
Continental Horticultural Company, Ghent.—*Catalogue of New Plants for 1882 (Illustrated)*.
Francis and Arthur Dickson & Sons, Upton Nurseries, Chester.—*Catalogue of Bedding and Border Plants*.



*** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (*Probitas, Verus, Honos*).—For the names of cultivated plants, their natural orders and date of introduction, Johnson's "Gardener's Dictionary" will doubtless meet your requirements. The last edition with supplement containing a list of the plants introduced up to the year 1880, can be obtained from this office post free 8s. 3d. The second question is rather vague, but probably the "Treasury of Botany," published by Messrs. Longman & Co., London, will be the most useful for you.

Labels and Garden Appliances.—Several samples of labels have been sent to us by makers and vendors with prices attached to them. These are purely advertisements, and as such can only properly appear in the advertising columns of the Journal by arrangement with the publisher. Circulars pertaining to new garden appliances are constantly being received, but our rule is not to express an opinion on any article that we have not seen. It is only when we have examined anything that is manufactured for use in gardens that we are justified in directing attention to any merits or novel features the article may possess. Both the vendors of articles and the public must perceive that this is the only proper course for us to pursue in matters of this kind.

Cucumbers Unhealthy (*R. L.*).—There are no insects on the leaves sent, nor do we think the injury is done by insects. It appears due to scorching and defective ventilation. Letters arriving on Wednesday morning can only be answered briefly, if answered at all.

Vines not Growing (*C. E.*).—The microscope reveals nothing to satisfactorily account for the state of the Vines. Have you examined the roots and the stem below the surface of the soil? There appears to us to be some impediment to the flow of sap, and it is in the direction we have indicated that we think you must search for the origin of the evil.

Tritonia hyalina (*F. W.*).—The plant of which you sent a single flower is a pretty species of Tritonia named *T. hyalina*, of which a figure was published in this Journal last year, May 19th, No. 47, together with a description of the plant and the best mode of culture. It is named *hyalina* from the glass-like transparency of the lower portion of the petals. It can be grown in a greenhouse or conservatory, a light sandy soil being needed.

Crimson Velvet Primrose (*E. Blyton*).—The plant you have obligingly sent us is the finest we have seen for years, and the variety is the true form of the above old favourite. We have seen and grown double crimson Primroses before, but this is the best so far as we know that is at present in cultivation. We congratulate you on your extremely healthy stock of this fine old plant, and you had better continue its increase.

Maranta arundinacea (*A. L., Madeira*).—The above is the plant to which you refer, and it is increased by division. We do not know from whence seeds can be obtained, nor plants in the numbers you appear to require. Your best course would probably be to write to the Directors of the Botanical Gardens at Trinidad and Jamaica on the subject, and you might through their agency succeed in obtaining what you require. You do not afford us sufficient data for answering your question about fodder grasses, but guano sprinkled on the ground in showery weather at the rate of 4 cwt. per acre would undoubtedly be beneficial, as also would a mixture of 5 cwt. of superphosphate of lime and 1½ cwt. of nitrate of soda used in the same manner.

Insects on Cucumbers (*H.*).—We are obliged by your letter. Your method applies to the prevention of insects, not to the extirpation of thrips already existing. Your system is sound and good. We have proved its value by thirty years of experience. But when you say that neither Gishurst compound, paraffin, fumigations of tobacco, nor other insecticides will kill thrips, you are either in error or the thrips that we have destroyed by the means indicated were less difficult to kill than your own hardier stock. The advice we gave was sound under the circumstances, and with these you were necessarily unacquainted.

Laced Polyanthuses (*W. H. B.*).—You ask if any of the plants of which you send flowers "are worth keeping for potting or the borders." Our reply is that not one of the varieties possesses the qualities required by florists in exhibition flowers, but all of them would be attractive in borders. Some of the flowers are "pin-eyed," and in none of them is the lacing sufficiently clear and defined to constitute first-class flowers. If the plants are in pots we should plant them in the borders and leave them there.

Cut Flowers (*W. Cardwell*).—Although the flowers were much withered, we can perceive that the varieties are meritorious. The Polyanthuses, in which single, double, and quaint forms, such as Jack-in-the-Green, are represented, being attractive and interesting; while the Pansies are bright, and the Daisies fine.

Remedy for Dry Rot (*A. L. O.*).—When the wood is in such an advanced state of decay as that you sent us very little can be done to preserve it, as, though the fungus might be destroyed, the substance of the wood cannot be restored. Dry rot is due to the attacks of several species of Polyporus and Merulius lachrymans, and one of the best means of preventing their appearance, where possible, is providing abundant ventilation. Wood dressed with creosote is not attacked by these destructive fungi, and as a remedy when they have made too great a progress a strong solution of corrosive sublimate is frequently applied, and has been found efficacious in checking the injury. It is important to employ thoroughly seasoned wood only in situations where it is likely to be attacked by dry rot.

Jasminum hirsutum (*W. W.*).—The plant we figured has been described by several authors, and you are mistaken in supposing it was only mentioned by Roxburgh as an old title of *Guettarda speciosa*. It is figured in the first volume of Edwards' "Botanical Register," plate 15, 1815. It was also subsequently figured in Sims' "Botanical Magazine," vol. xlv., plate 1991. The slight difference in the form of the leaves of the specimen we figured is due to it having been obtained from a small plant, and in that state the foliage is rather variable. It is grown both at Kew and Chiswick, where you can compare the woodcut with the living plants.

Propagating Gesneras (*A. C.*).—These may be increased in several ways, one of the easiest being by division when repotting the old plants if these are furnished with tubers. Cuttings of the young growth may be inserted in a compost of silver sand and leaf soil, plunging the pots or pans in bottom heat, and being careful to avoid giving too much water. The old leaves can be placed on a similar compost in the same way as Begonia leaves, or the petiole end of the leaf can be inserted in the soil in heat, but in either case damping is the chief evil to be avoided. When first potting the young plants so obtained a light compost of peat, leaf soil, and sand must be used, but as they advance light turfy loam can be substituted for the peat. The specimen sent is *Maurandya Barclayana*.

Vines Exhausted (*J. F.*).—Judging from the appearance of the leaves sent, which are quite destitute of chlorophyll, we think your Vines are completely exhausted, and it will be practically impossible to restore their lost vigour. By far the better plan will be to remove them and plant young Vines. It will be no use, however, planting them in the existing soil of the border; the old soil must be removed, and a station of good loam, with wood ashes, bones, and old lime rubbish, formed. If the other Vines in the same border are the same age as those exhausted, we think it will be prudent to examine their roots with the object of determining whether they also need fresh soil or not, to prevent the Vines degenerating as the others have done.

Ants in Melon Frame (*R. C.*).—We have never applied paraffin to a Melon bed, and we advise you to proceed cautiously. We think, however, that a fluid ounce of the oil (half a wineglass) thoroughly mixed with warm water and poured on the ant nest alone will banish the insects and not injure the plants. If a few roots are destroyed, which we scarcely think will be the case, there will be plenty in other parts of the bed to support the plants. It is important that the paraffin be mixed with the water as effectually as possible by violent agitation. A few forcible ejections from the syringe into the pail at the time of using, and then one alternately on the bed and in the vessel, will be a good method of procedure.

Mildew on Roses (*G. M.*).—It is no trouble to us to answer inquiries when we can do so usefully, and no apology is needed on the part of those applying for information. The Rose leaves you have sent are much infested

with mildew, and the simplest remedy you can adopt is to syringe them with a solution of soft soap, obtained by dissolving 2 ozs. of soap in a gallon of water, and then dust the foliage when wet with flowers of sulphur. This will kill the mildew in two or three days, and can then be washed off with pure water. In all probability, too, the root-action of the plants is defective, or the soil does not contain the necessary support that the plants need. If the pots are full of roots liquid manure will be beneficial, or a good covering of soot spread on the pots and watered in will prove a safe stimulant. The plants must also have all the light and air possible. The presence of mildew usually indicates that the atmosphere is too close and moist, but this is not invariably so. You say nothing about the soil in which the plants are growing, and possibly the root of the evil is there, or in some error in watering.

Vines Scorched (H. T. H.).—You say the Vines are "exceedingly healthy." Judging by the samples you have submitted we arrive at a different conclusion. Neither the texture of the leaf, nor its colour, nor the appearance of the bunch indicates healthy Vines. If you have sent us fair specimens of the foliage and bunches we must inform you that the Vines are decidedly unhealthy. We think the roots are working in ungenial soil, and we are almost certain some of them are decayed, and quite certain the Vines are not receiving the nourishment they need. The atmosphere has also, we think, been kept too close and moist, and we venture to say the lights have not been opened soon enough in the morning—we mean, they may have been opened soon enough sometimes, but not always. We venture also to predict the Vine border is not netted with healthy roots near the surface. It is most important that you encourage surface-rooting, as not until you do this and afford proper food can the Vines be healthy. Your Vines are producing gross growth and large flabby leaves, and this you mistake for health. They should produce short-jointed wood and thick dark green leaves, with sturdy bunches. As you do not describe the border we can only say that if it is wet drain it; if poor, enrich it; if too rich already, add lime freely. The root of the evil is literally at the roots of the Vines; while the system of ventilation and general management in the house have not been the best under the circumstances. Read what Mr. Taylor has recently said on the ventilation of vineries. We will readily aid you further if you wish us to do so and will supply us with the necessary data for that purpose. We shall require to know the precise condition of the border and roots, the age of the Vines, with the crops they have previously borne, and any other information that you think will enable us to understand the case fully.

Various (C. A. J.).—We have no doubt the application of carbohc or sulphuric acid, as recommended in another column, would be effectual both in extirpating worms and destroying weeds. The escape of gas from the mains is pernicious to vegetation and often quite sufficient to cause the defoliation of evergreens. The cause of trees failing to grow in towns we attribute as much to the soil being impregnated with gas as to impurities in the atmosphere, and we know of nothing more penny wise and pound foolish than to plant young trees in streets where there are gas mains without removing the poisonous soil and using fresh sweet compost freely. Salt can only be beneficially applied to some lawns; where the ground is wet it might be more injurious than otherwise. It acts as a manure to vegetation or as a destroyer of it according to the strength at which it is used. A pound regularly scattered on a rod or pole (30½ square yards) during showery weather will be a suitable quantity to apply, if it is needed. If it rests on the grass long during dry weather it will probably do some injury. For an answer to your other question apply to Mr. Abbott, Fairlawn, Southall.

Insects on Vines (C. J. Smith).—The box sent, on examination contained no beetle, but only a shrivelled larva, which had been so far damaged in transit as to render any decision upon its species impossible. It may be that the insect in question is one of the elaters, but this is mere conjecture. If you like to send more specimens they shall be carefully examined. Whatever it is, we fear after the efforts you have made to extirpate it that you have a difficult task before you. It is possible that paraffin might be used of sufficient strength to kill the insects without injuring plants or Vines; but you had better try some experiments on a few plants in pots before applying the remedy on a large scale. Or you might mix 2 ozs. of hellebore powder with a little hot water to the consistency of cream, and then add a gallon of water and apply this to the soil where the grubs abound. Mr. Witherspoon says, "In soil saturated with hellebore no insect can live, and yet plants are not injured," and he believes the remedy suggested would kill the phylloxera without doing any damage to the Vines. We should like you to try it and inform us of the results.

Seakale Seeding (A. D.).—When Seakale plants are allowed to mature seed they are more or less exhausted, and the growths of the following year will not be so robust as if seed had not been permitted to ripen; still a free growth of foliage is undoubtedly essential to the production of good crowns. We find that two extreme courses are not uncommonly adopted in the management of Seakale in summer. One is to allow seed to ripen on the plants, the other to cut down the flower stems, thus removing all the foliage. Our plan is to let the flowers form on the plants and then cut off the heads just before expansion, leaving all the leaves. These unexpanded flower heads are delicious when properly cooked. Those that are not required for table are thrown away, as we do not consider it wise to allow seed to ripen on the plants. If we want a little for sowing, one plant produces sufficient for our purpose. It is right and necessary to allow the growths of Asparagus to mature, but ripening seed on them certainly does not improve the beds. The application of lime water as you propose will be beneficial in extirpating slugs.

Border for Vines (L. F.).—In your case, where the space outside the house appears to be required for flowers, we should have made the Vine border inside the house. The space is ample, and with good soil and good management we should expect first-class Grapes and full crops for many years. We are aware, however, that greater care is requisite in the management of Vines grown in inside borders wholly than when the roots are all outside, or part of them outside and part inside. You have, therefore, we presume, adopted what you consider the easier plan, and probably the right one if the Vines do not have the attention of a skilled cultivator. You say the site is wet, but the border has been "well drained." We have seen much drainage material provided in the form of a thick layer of stones and broken bricks, but it was useless by the want of a free outlet for the water. For this, however, you have no doubt provided. In wet sites we prefer the borders considerably above the general ground level. We could grow excellent Grapes in a house such as yours with a border 12 feet wide and 3 feet deep; but we should only make it 4 feet wide the first year, the front consisting of a wall of turves, these being thickly covered with long manure in the summer, or faced with boards to prevent the soil drying excessively, but if the turves were used fresh the grass would grow between them and form a green covering. When the border became permeated with roots we should add another 4 feet of soil and turves, and so on until the entire border was formed. In all probability we should find a width of 10 feet sufficient, as we could support the Vines with periodical top-dressings of fresh soil and manure, but 12 feet would be ample. We consider

this plan in every way preferable to make a border the entire width at once; still, if for the sake of appearance the latter plan is desired, good Grapes can undoubtedly be produced. Some of the healthiest Vines we know, with rods 18 feet in length, are grown in borders 8 feet wide and 3 deep. The proper size of Vine borders can only be determined by their nature and the system of management pursued. Some pastures will supply ample food for two bullocks per acre; on others one animal would starve on two acres. It is the same with Vine borders, which are simply food stores for the Vines—larders. A large larder may be comparatively empty, a small one amply stored, and it is obvious the small larder, or border, would be better than the large one under these circumstances. Unless the season is very wet and dull we should, with your dry soil and warm district, certainly remove the coping from the wall in June.

Petroleum an Insecticide (Probitas, Verus, Honos).—We do not recommend the systematic use of petroleum for Roses, Pelargoniums, and greenhouse plants generally; first, because such insects as aphides are easily destroyed by other means; and secondly, unless the oil is washed off the foliage its constant use would stop up the pores and thus be injurious to the plants. If we had Camellias infested with scale or Gardenias with mealy bug we should not hesitate to syringe them with a mixture of petroleum and soapy water, because the oil would then be saponified by the alkali in the soap and could be washed off; but this is different from using the oil with pure water and applying it regularly for ordinary plants infested with ordinary insects. A fluid ounce of the oil to a gallon of water will kill most kinds of insects and injure few kinds of plants, if any; but it is of great importance that the mixing be effectual, the nature of the oil being to float on the surface of the water. We have seen petroleum used at twice the above strength with safety, and we have seen it do injury, the different effects probably resulting from the different qualities of water employed, or to imperfect mixing of the two fluids.

Vines Unsatisfactory (J. F.).—There are no signs of phylloxera either on the roots or foliage of the Vines sent; in fact neither this nor any other insect has caused the growth to be arrested. You state the Vines were planted last June; that being so they must have been raised from eyes the preceding year, and possibly may have been fruited in pots; but whether fruited or not, the pots would be crowded with roots from which the soil was not shaken at the time of planting (indeed it could not have been safely done when the Vines were in full growth), but planting was done with the roots and soil undisturbed. In that case further root-extension and the production of fibres would be slow, and the growth correspondingly sluggish. The Vines themselves have told you, at least they tell us, how much they have objected to the treatment they received, and how insufficient the cramped roots were for supplying them with what they needed; hence they have produced a whorl of "collar" roots, and very fine roots they are, distinctly above the roots that were planted. You erred, then, in planting old Vines in the way we conclude you have done in June. Old Vines we do not prefer for planting, and were we compelled to have them we should shake all the soil from the roots, spreading them out straight, and plant before they had made any foliage. The next mistake you have made is permitting the whole length of cane to remain the first year. One of the canes before us is 9 feet long; more than half of this, which was weak and unsatisfactory, ought to have been removed last autumn, the sap would then have been concentrated on fewer buds, and you would have now a few strong canes instead of a number of weak, and we may add useless, growths; in fact the resources of the Vines are being frittered away. We think you have made three mistakes—1, planting old Vines; 2, planting them wrongly; 3, not shortening the canes. Still there is, we think, a remedy. The collar roots will support the Vines if you give them support by top-dressing and water as needed. The laterals on the upper parts of the Vines are worthless, therefore remove them, retaining those only towards the base that are strong and vigorous. On the weaker of the two Vines you have sent we should only retain one growth, that near the base, which would make a good cane during the season; on the other we should retain three growths, which are strong, one to be trained up the roof without being stopped, the other as laterals. If you act on the principle we have suggested of removing the weakly laterals and encouraging those that are strong near the base of the Vines, allowing the strongest in each case to take the lead and form the future rods, you may, we think, with otherwise good management, obtain healthy Vines. Cannot you induce some competent Grape grower to examine your Vines and advise you how to proceed with each, as they may not all require precisely the same treatment?

Names of Plants (R. C.).—Placing a few specimens in a large box with no packing material is one of the worst ways of sending flowers by post, as they are shaken about so much as to arrive at their destination in a very unsatisfactory condition. Those sent by you in this way were scarcely recognisable, as the blooms had fallen from the stems, and were mostly withered. Begonia 1 appears to be *B. nitida*; Begonia 2 is *B. semperflorens*. Azalea 2 is *Souvenir du Prince Albert*. (*Salisbury*).—Your plant is the ordinary form of *Agapanthus umbellatus*. (*A. C.*)—*Maurandya Barclayana*. (*W. H. S., Blackheath*).—1, *Francoa ramosa*; 2, *Diplacus glutinosus*; 3, *Cerasus Padus*. (*Reader*).—*Centaurea montana*. (*W. R. S.*)—1, *Cytisus sessilifolius*; 2, *Genista hispanica*; 3, *Odontoglossum cirrhosum*; 4, *Odontoglossum vexillarium*. (*L. R. N.*)—1, *Cerasus Padus*; 2, *Oncidium concolor*; 3, *Viburnum plicatum*; 4, *Veronica gentianoides*; 5, *Epidendrum bicornutum*. (*W., Surrey*).—1, *Onychium auratum*; 2, *Gymnogramma peruviana*; 3, *Asplenium viviparum*; 4, *Selaginella Martensii*.

Figures in Honeycomb (Star).—We forwarded your letter to Mr. Pettigrew, the writer of the article to which you refer, who has replied as follows:—"As nothing is said as to the width and depth of the star or box containing it, I cannot well understand the plan submitted. If I wanted my bees to build a star I would get a circular wooden super 15 inches wide and 3 inches deep, made of half-inch stuff, unplanned or from the saw. The star would be cut out of the lid, with narrow strips of comb foundations sealed to it before it is screwed on. A sheet of paper should be placed between the crown of the hive and the super to prevent contact; and when the super is cut off another or double lid should be screwed on to hide the cavities of the star in the crown of the super. If the super is only 10 inches wide an inner circle will be unnecessary. We all learn by experience, and if our correspondent makes a mistake in his first effort he will be able to avoid it in his second attempt. By a little care and contrivance a beautiful star may be built from a board or lid of a super, lifted out of the super without injury to the figure, inverted and covered with a glass shade."

COVENT GARDEN MARKET.—MAY 17.

A BETTER business doing at last week's lower rates, forced fruits and vegetables reaching us in good supply.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 0 0	Lemons.....	ease 15	0 0 20 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	4 0 6 0
Cherries.....	lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	15 0 20 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	8 0 10 0	dessert.....	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples....	lb.	1 6 2 0
Cobs.....	100 lb.	45 0 50 0	Strawberries....	lb.	2 0 6 0
Gooseberries....	½ sieve	6 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	lb.	3 0 6 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 4 0	Mushrooms.....	punnet	1 0 1 6
Asparagus.....	bundle	3 0 6 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	100	1 3 1 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 6
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 0
Capiscums.....	100	1 6 2 0	Radishes.....	doz. bunches	1 0 0 6
Canliffowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	0 0 0 0
Endive.....	dozen	1 0 2 0	Shallots.....	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 6
Garlic.....	lb.	0 6 0 0	Tomatoes.....	lb.	1 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

MANUAL LABOUR IN FARMING.

(Continued from page 395.)

WE will now consider the charges and payments for labour in harvest. The wages and arrangements, however, vary much in different districts, yet in all cases they are extra as compared with the ordinary labour bill of the farm at other periods of the year. In Scotland, especially in Forfarshire and Aberdeenshire, where the bothy system prevails, the harvest work is generally included in the year's contract, and extends to extra allowance of food and drink, as well as extra money usually paid at the conclusion of the period of hiring. In the eastern and northern districts of England in some cases the harvest work is done under the gang system, the master of the gang arranging to cut, carry, and stack all the corn or latter hay, as well as pulse crops, at so much per acre. This work for the future from this time will be much simplified, as the cutting and tying of corn will be done by machinery; it, therefore, to a great extent will be carried out by the assistance only of the regular workers on the farm, and such part of it as can be done by women or boys, like that of setting up the corn after the machine, will be done by them in some districts. In the southern and south-western counties the arrangements for harvest work where done by the day is paid for by double the ordinary money wage of the district, with beer or cider, and some cases food, at the afternoon meal, when carrying and ricking the corn takes place; when such a payment is made the men are obliged to work from sunrise until sunset. The home farmer, however, will note that in certain districts of the country different methods are pursued in making arrangements and contracts for the harvest work, and he will do best to follow the local customs to a certain extent which prevail in the neighbourhood in which he may be placed.

There is room for great changes in the contracts with the harvest workers in consequence of the changes which have been introduced with machinery. For instance, if the cereals are cut and tied by the new reapers and harvesters the afterwork of setting up the stacks becomes a trifle, and well suited to the capacity of the wives and children of the labourers; at the same time

nearly the whole of the overhand work, such as unloading the carts at the time of staking the corn, is now done by the elevator worked by a horse or mule, the unloading being only the underhand work of casting the sheaves into the elevator. This tying of the crops may well apply to either Wheat, Barley, Oats, Rye, and Beans; for when once tied and set up all these crops are as safe against adverse weather as they can be treated in our fickle climate, at the same time when once the crops are tied they can be the more readily and quickly conveyed to the rick or barn. In the future the home farmer will have far less risk of damage in the stacks to the corn, or pulse, or hay, if he will take advantage of the opportunity now afforded him of using the system of exhausting the heat from ricks by the use of the newly invented machine for the purpose, and the construction of the stacks upon the required method. We must, therefore, look forward to the time when the actual harvest labour will be diminished both in time and cost, and thereby prevent the great waste of valuable time usually so much required in other directions, such as Turnip-hoeing. The same remark will apply in some degree to the labour of men required to attend the steam cultivator, which certainly ought to be kept in full and constant work during the whole harvest month when the weather is dry and suitable.

The next point we have to consider is the difference in value of a cottage and garden, where these are let to the labourer either free or at a rental below actual value. This is very easily settled with the workman by a simple or specific contract, but it leads to a point of far greater importance; we allude to the advantage of the labourers being accommodated with cottage and garden on the estate, and near to the scene of their daily labour, in order that the men may be retained for work on the farm by contract for the year, and thus prevent the disadvantage of being dependant upon casual and uncertain labour. Some estates have but few cottages at command, for we well recollect from 1830 up to 1840 large numbers of cottages were pulled down in order to prevent the increase of a local population, a considerable portion of which at that time frequently became chargeable upon the poor rates; in consequence of which cottages should now where insufficient in number be erected so as to localise the required labour, particularly in the outlying districts. Any new cottages which may be built should be placed near the farm premises at least for the carters, the shepherd, and herdsman; but for the ordinary labourers the cottages may be situated at various points in order that the men may not only be near to their work, but that they may be also in some respects overlookers as well as workmen, and be able sometimes to detect any depredations which may otherwise occur unnoticed. Besides, we highly approve of taking the labourers into our confidence when by faithful servitude they prove themselves worthy of it.

There is another point which we consider of some consequence both directly and indirectly in encouraging labourers in habits of industry and sobriety. We mean the effect of societies which are established in various parts of the kingdom, especially in the southern and south-eastern counties, for the distributions of rewards and prizes to both males and females for long and faithful services in the agricultural districts, including rewards for skill and industry as teamsmen, shepherds, and herdsman, and also for young men who may be proficient in various departments of farming operations; also to female servants of all ages for long and faithful servitude. Our long experience in the training and management of the agricultural labourer enables us to speak of these matters with some degree of confidence as to the result of carefully teaching and encouraging the rising generation in their pursuits of farm labour. There is an old saying, "As the twig is bent so the tree's inclined," and we can look back and see the result on numbers of boys whom we employed and encouraged in habits of industry connected with every kind of agricultural work

with great satisfaction, for we can now notice them settled in various ways, in the occupation of land on their own account, or doing well in our colonies, or as skilled shepherds, ploughmen, thatchers, &c.

This leads to the question of education, for not one of these men to whom we have alluded ever received education beyond reading, writing, and arithmetic, which was obtained only at the Sunday schools and evening classes of the period. We view education as a great social question, not to be applied indiscriminately; for although it may be advisable in populous districts to teach the young in various ways, yet in the agricultural districts reading, writing, and arithmetic are sufficient, and this may be attained without interfering with their training in the open fields for the various duties of an agricultural workman. Nor does this simple mode of proceeding prevent the most industrious and the most intelligent from rising into comparatively independent positions in the social scale of society, as shown by the result of our experience above referred to. At the same time, we must consider that skilled labour in agriculture is more necessary than formerly, on account of the extension of machinery now employed on the farm, particularly the work required in connection with steam power, which can be readily acquired by men of moderate capacity if correctly taught. In fact, people in general are too apt to consider that no skill is required in the various occupations of the farm labourer. We must, however, remind them that the far greater portions of skilled labour can only be acquired on the farm in the exercise of daily labour, and if this is not done at an early age it cannot be done at all. In order to retain the services of an agricultural labourer of the present day some mode of spending his time other than attending the public-house seems to be essential, especially with the young men and lads in the country districts and villages, and we have viewed with satisfaction the question of working men's clubs and halls. Amusements of various kinds are also introduced, and a cricket club is frequently connected with these workmen's halls. Smoking and also drinking are usually, and very properly, prohibited, except the refreshment of coffee. Before concluding our subject we must refer to the policy of providing work for aged and partially infirm men. But, of course, these cannot be placed as labourers at full wages, but may always be employed at light work, such as weeding, hedge-trimming, and stone-picking, which is very important in those districts where female workers in the field cannot be obtained. Such men and the women may be paid at about the same rate of wages. We have only one more remark to make, and that refers to the fact and significance of the importance of piecework on the home farm, for we have an instance and illustration where the farm labourers are paid as much as £1 per week at task work, while for day work only 13s. per week is paid. The task work, however, is the most beneficial to the farmer, and the labourer also if worthy of his hire.

WORK ON THE HOME FARM.

Horse Labour.—The weather has become more settled; the land intended for Mangolds may now be seeded, and as the seed time has been somewhat delayed, abundance of manure will push the young plants forward; and after the first hoeing, if they do not look gross and promising, 1 cwt. of nitrate of soda, 1 cwt. of kainit, and 1 cwt. of fishery salt should be mixed, and strewn per acre by hand between the rows of plants. In fact, we never need be afraid of applying more manure than the Mangold roots can take up, and as an investment it is safe and good, for we cannot exactly at all seasons estimate how much manure has been used by the Mangold crop; but it is quite satisfactory to know that whatever amount of manure is left in the land it will be available for the succeeding crop. The Potatoes were mostly planted before late rains. If, however, on some soils the planting has been delayed until now, the sooner they are set the better, and if the season is favourable there is no reason why a full crop of sound tubers may not be obtained, particularly of the Champion and other late varieties, but the setting should not now be delayed by the carting and spreading of yard or town manure, because time is important, and it has been proved repeatedly in our practice that 4 or 5 cwt. of Peruvian guano is equal in its results to almost any quantity of yard or town manure that can be applied, and the crop is less liable to suffer from the disease. The Carrot seed should now be sown, and if the land is clean and in good condition from its previous management and cultivation, the middle of May is about the best time for drilling the seed. We find when the seed is put in earlier that it lies longer in the ground before vegetating, but it makes no difference to the weeds, for they grow so fast that they not only necessitate an extra hoeing, but in some instances it is impossible to hoe the Carrots at all, unless they are drilled upon the stretch, and the land kept horse-hoed between the lines until the Carrot plants are strong enough for hand-hoeing in the lines. We have grown first-rate crops of Carrots drilled on the flat, the land being once ploughed and pressed after Rye or Trifolium cut up for cattle; but the land should be worked close behind the presser, so that the land may be extremely fine on the surface, and drilled with some artificial manure so that no time may be lost. In this way

2 cwt. of guano, 4 cwt. of bone superphosphate, mixed with 20 bushels of ashes per acre may be drilled with the seed at 15 inches apart between the lines, and if the after management is properly done by clean hoeing and singling at 9 inches apart in the lines, a very full crop may be expected at but little cost. This crop or Mangolds we can recommend for cultivation on land being deficient in chalk, and where Turnips of sorts could not be grown without becoming club-rooted, which is fatal not only to the weight, but also to the quality and feeding value of all the Turnip or Brassica species of vegetables. The preparation of the land intended for Swedish or early Turnips should be forwarded as much as possible, for in the northern and midland counties it is now time for drilling Swede and hybrid Turnip seed, especially if the produce will be required for storing off the land for cattle food in the boxes, or for sheep feeding on the land as a preparation for Wheat upon strong and level soils. If chalk or lime are required the former may be made fine and drilled with the seed and manure at the rate of 25 bushels per acre; this mixed with the usual or requisite quantity of artificial manure will insure the roots growing sound and free from the clubbed roots. The lime, too, may be applied by the drill and mixed with the manure if superphosphate only is applied, but in case guano or other ammoniacal manure is used lime will dissipate the ammonia to a certain extent. In such a case we would apply bone superphosphate only, with thirty bushels of lime per acre, and after the Turnips are hoed we should apply 1 cwt. of nitrate of soda and 1 cwt. of fishery salt per acre by hand between the lines just before the second horse-hoeing.

Hand Labour.—Labour should now be held in readiness for the hay season, for the grass is now, or will be, fit to cut in a few days in the early districts of the southern and home counties, and we advise the home farmer to be prepared with apparatus required for exhausting the heat and any water out of the hay, and build the ricks of hay as required to make the exhausting apparatus available, especially as it is by no means a costly matter, like Mr. Gibbs' drying-by-heat apparatus. This system of exhausting the heat from the ricks has been quite successful in every instance which has come within our notice, and we consider it one of the most ingenious and beneficial inventions that has ever been offered to the farmer, because it is not only applicable to hay, but to corn and pulse ricks also, for we know that a large portion of the Oat ricks made in the northern and midland counties last year were heated, and the straw moulded, which by the use of the exhausting-of-heat process might have been avoided entirely.

Live Stock.—In the south-western counties where the horned stock of the Somerset and Dorset breeds are kept, this is the time for turning out the rams for service in the breeding flocks, but especially the off-going portion of the ewes which are to be sold in the autumn for the purpose of rearing early lambs for the supply of the metropolitan market. Instead, however, of mating the ewes with rams of the same breed, the off-going ewes are mated with a Down ram in order that the lambs may be of the choicest quality. There are, however, certain points of management to be observed. The ewes should not be shorn of their wool until they have been served, otherwise they will refuse service, frequently until the end of June. The rams should be shorn about a fortnight before being run with the ewes. It is well to keep them under cover at night time for some days previous to their being turned out with the ewes. Down rams of the best quality should be chosen, either of the pure South Down breed, or otherwise of well-bred Dorset Downs. The ewes must be liberally fed to induce them to breed at the earliest season.

POULTRY AND PIGEONS

TUFTED FOWLS AS LAYERS.

WE return to the subject of breeds of fowls excellent as layers. About a million and a half of eggs are on an average daily imported into England. With real care and a little intelligence the cottagers of our island might supply that demand just as well as those of the continent, and anyone who put them in a way to do so would be a public benefactor. The last race of good layers about which we wrote is one distinguished by ample combs, and which has long had its home on the sunny shores of the Mediterranean. We now come to another highly productive family, and one with many collateral ramifications, but all alike decorated with a tuft larger or smaller on the head.

In old English farmyards were to be found fowls erected like the lark and of various colours; they were always known by good henwives as excellent layers. It is impossible to say for certain whether they were a distinct breed long bred with small crests, or whether these were only the traces of remote relationship to large-crested Polish ancestors, for the so-called Polish fowl was long ago known in England. Aldrovandi believed them to be a distinct race. He speaks of "our farmyard hen known to everybody, entirely white and crested like a lark." We certainly can remember in some old-fashioned English farmyards, before the

Asiatic breeds were generally dispersed, in our opinion much to the detriment of barndoor stock, excellent hens such as Aldrovandi describes. We must not, however, forget that then, or not long before, the pure white breed of Polish were in existence, from which they might have been descended. It is barely five years since in a farmyard in a remote part of Lombardy we saw a large stock of fine pure white fowls with small crests.

Dixon, too, writing in 1850 believed the lark-crested breed to be distinct from the Polish. He says, "The first of whatever colour is of a peculiar taper form inclining forwards, as Aldrovandi's old-fashioned woodcut well represents, with a moderate depressed backward-directed crest, and deficient in the neatness of the legs and feet so conspicuous in the Polands; the latter are of more upright carriage and more squarely built frame. Set the two side by side, and their discrepancy will be apparent. I would distinguish the dark-crested from the Polish fowls by the former having an occipital crest, the latter more of a frontal one." Whether this lark-crested breed anywhere survives now we cannot say, but we are inclined to think it does, and should certainly advise its preservation if it can be found, remembering the good qualities of the crested hens we possessed in childhood. A quarter of a century ago the only tufted fowls known in England were this lark-crested race and several varieties of Polish. Since then tufted French breeds have been introduced and become popular, and we have the magnificent Crèves and the useful hardy Houdans. It is not uninteresting to a lover of poultry to observe the birds portrayed in old pictures. Those in most old Dutch pictures resemble Houdans in comb, with small crests, and generally an admixture of some red or brown feathers. We have little doubt but that the tufted French breeds and all those varieties known in England as Polish are descended from one stock. All are good layers, and all are, as a rule, non-sitters. How "Polanders," as they were formerly, or "Polish" as they are now called in England, got this name it is idle to inquire. The French call the White-crested Black variety Dutch, and all the others Paduan fowls. Thus much only we know, that as a rule the large-combed breeds have thriven in the south, the large-tufted in the more northern parts of Europe.

Tufted fowls, as a rule, do not lay quite such large eggs as the fowls of the Mediterranean, but they lay a great many of them, and are preferable as table fowls. We always try to combine beauty and utility in our poultry, and so will in a future paper give a short description both of the appearance and qualities of the various tufted sub-varieties, that our readers may suit their own tastes.—C.

(To be continued.)

AN OLD FANCY PIGEON REVIVED.

THE NORWICH CROPPER:

WHEN I was a small boy, about forty years ago, I was as ardent a fancier of Pigeons as at any period of my life since; perhaps even more ardent, as all was new to me, all the beautiful variety of form and feather in these taking birds. Then I lived next door to an old fancier, and knew many others. I have all my life been blessed with a tenacious memory, particularly perhaps in regard to pets, having as clear a recollection of a pet pony, or dog, or cat, or Rabbit, or Pigeon which I had when a schoolboy as if I had seen it last year only. This gift of an accurate memory for things seen and known in boyhood is, I believe, not unusual; thus I find the late Lord Campbell writing—"I visited my brother in Fife, and saw with great interest the scenes of my childhood. I was particularly struck with a small footbridge across the Swilkin Burn at St. Andrews, which stands exactly as I had left it about half a century ago. I remembered every stone of this little arch as well as I did the ruins of the cathedral, or St. Regulus's Tower." I have a like memory. I can see before me now the Pigeons I kept or others kept when I was a lad; I see their forms, their colours, and their markings.

But to my present purpose. I distinctly remember that there were two varieties of pouting Pigeons kept by fanciers. The more humble class called their Croppers, but those tradesmen who, at stated periods of the year, visited London brought back with them a higher class of pouting Pigeon which they always called Pouters, resenting the term Cropper if applied to their pets. The Pouters proper were exactly what are now exhibited at the Crystal Palace and other shows, only smaller. There were Black Pied, Yellow Pied, Red Pied, and White. There might have been, and no doubt were, Blue Pied to be had, but probably because the Croppers were all of that colour or nearly all, the Pouter fanciers did not care for such birds. There were also plenty of Mealies. I have said these Pouters were like those now exhibited, only smaller. Many, particularly the Black Pied, were beautifully and correctly marked; legs perfectly covered with feathers, wings with the pleasing rose pinion.

Better marked and better shaped than the average Pouters of the present day, as all crossing of colours was forbidden; they were pleasing slender birds, but very small as Pouters now are. They had a refined and delicate look and would not rear their young.

These birds I now leave to speak of the commoner Croppers. In colour they were chiefly blue and blue-chequer, many being of the latter colour, with a few whites with dark tails and a few dark feathers on their heads. Next, other characteristics: the Croppers were very tame, most amusingly and impudently so; they were also capital fliers, always in motion, always in show, speeding off with a low peculiar sailing flight, and soon back to their homes, of which none were more suitable than an outhouse, with some open rabbit hutch, to which outhouse access was given the birds through an open window. Pounce they came when one entered the building, and flew to their boxes and stood ready for petting and combat. But next, as to size and shape of these Croppers. They were small but robust, a few feathers only on their legs, a good many blues kite-barred, and many, particularly Chequers, would come without the white half moon on their crops. Many were excellent breeders, and all were very cheap, within any artisan's or schoolboy's pocket. I knew them at Cambridge, Peterborough, Wisbech, Whittlesea, and other towns in the Fens and east of England, and I knew that some came from Norwich. They and fanciers were rather looked down upon by the richer and London-supplied men. Years rolled on and I quite lost sight of my old friends the Croppers; probably, so it seems, from my having left the east of England as a youth, and having lived chiefly in the south or west of England ever since, and their never being exhibited. Last year, however, I met with a copy of Lyell's "Fancy Pigeons," and found a chapter of nine pages devoted to the kind of bird I am writing of, and entitled by Mr. Lyell, "the Norwich Cropper," with two illustrations. This pleased me very much, and I procured some birds of this, to me, revived fancy Pigeon. The best and cheapest birds I had straight from Norwich. After a year's experience I now wish to speak of these Norwich Croppers.

I am convinced that they are the Uplopers of Moore and the early writers, with all the peculiarities of a pure breed. Moore says of this Pigeon—"The Uploper is a Pigeon bred originally in Holland. Its make and shape agrees in every respect with the English Pouter, only it is smaller in every property. Its crop is very round, in which it generally buries its bill; its legs are very small and slender, and its toes are short and close together, on which it treads so nicely, that when moving you may put anything under the ball of its foot; it is close-thighed, plays very upright, and when it approaches the hen generally leaps to her with its tail spread, which is the reason the name is given to it, from the Dutch word *uplopen*, which signifies to leap up. These Pigeons are generally all blue, white, or black, though I will not assert there are no pids of this species." I will remark on this that the east of England was very much peopled from Holland and Belgium—that Flemish names still exist; that a fenman used to say his boy out with a leaping pole to cross the fen drains with, "was loopen about somewhere." Mayor adds little or nothing to this account, save that "there possibly may be some of them pids." Girtton says, "It is a great rarity to see any of these Pigeons pids, they being almost always either all white, black or blue." So much for the last-century Pigeon writers. I will next refer to more modern authorities.—WILTSHIRE RECTOR.

(To be continued.)

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. May.		Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	7	29.987	55.2	49.7	N.W.	52.0	65.2	44.3	112.3	40.9	
Mon.	8	30.037	52.6	48.3	N.W.	52.2	61.3	41.9	112.1	35.2	
Tues.	9	30.443	49.4	43.3	N.N.W.	52.0	61.2	38.3	99.2	32.8	
Wed.	10	30.368	57.6	54.0	N.W.	52.3	68.2	49.5	123.0	47.7	
Thurs.	11	30.336	59.5	55.6	N.N.W.	53.3	70.7	45.9	102.5	39.9	
Friday	12	30.248	59.4	52.8	N.	54.0	68.3	48.6	118.6	42.5	
Satur.	13	30.362	57.7	48.7	N.E.	55.0	69.3	38.8	113.4	34.7	
		30.254	55.9	50.3		53.0	66.3	43.9	111.6	39.1	

REMARKS.

7th.—Bright and warm, though occasionally dull and heavy-looking; light.
8th.—Fine and bright, much wind and dust. [uing from 9.30 P.M.]
9th.—Fine, bright, cool.
10th.—Dull at first, afterwards very fine, with bright sunshine and warm.
11th.—Cloudy in early morning, afterwards fine, bright, and warm.
12th.—Fine and bright.
13th.—Fine and bright.
High barometer, temperature above the average, northerly winds and no rain.—G. J. SYMONS.



25th	TH	Society of Arts at 8 P.M.
26th	F	Horticultural Exhibition at Manchester.
27th	S	Royal Botanic Society, 3.45 P.M.
28th	SUN	WHIT SUNDAY.
29th	M	BANK HOLIDAY.
30th	TU	
31st	W	Kingston Horticultural Exhibition.

MUSAS.

MUSAS rank amongst the most noble plants of the tropics, and are, perhaps, only surpassed in grandeur by Palms. The species are all of a succulent nature, of rapid growth, and the fruiting kinds come to maturity in a much less time than the majority of plants of equal size.

About thirty species are known, all natives of the Old World; but two or three species are now widely distributed and cultivated throughout the tropics for their delicious fruits. Of fruiting kinds *M. sapientum* and *M. Cavendishii* are by far the best, *M. Cavendishii* being the most extensively cultivated in this country. This varies but little, whilst, on the other hand, *M. sapientum* varies considerably. Of the latter there are several very distinct forms. One produces fruit of great size, and when growing is of a dark brown colour, turning to yellowish brown when ripe. The flavour of this is below the average; the yellow variety is preferable for table. In the tropics the different varieties are known under local names, such as Champa, Kantally, Ram Kele, Martaban; and one that is grown extensively in Brazil, called The Ladies' Fingers, is considered to be the highest flavoured of all, and is much prized.

I have often been surprised that *Musa Cavendishii* is not more generally grown in this country. Surely it would well repay at many establishments to have a house devoted entirely to its cultivation. With a sufficient number of plants the fruit can be ripened at all seasons (as is the case with Pines), although a constant supply cannot be insured. There appears to be a rather large trade in importing Bananas to this country, and no doubt it is profitable, for single fruits of first-rate quality in Covent Garden are sold retail at 3s. to 4s. per dozen. Imported Bananas, however, even of first-rate market quality, are scarcely equal to third-rate home-grown examples. The imported fruits have to be cut in a green state and allowed to ripen coming home and in the shops, so that they cannot possibly possess such a delicious flavour as fruit allowed to ripen naturally on the plants. A good bunch of *M. sapientum* will produce over a hundred fruits, and if well matured each fruit should weigh at least half a pound; and it will be remembered that a bunch of *M. Cavendishii* was shown at one of the Kensington meetings some months since weighing 90 lbs., and even higher weights have been recorded. Undoubtedly Bananas are very nutritious and satisfying, and they form one of the staple foods of the natives in some tropical regions. If Yams (the substitute for our Potatoes), Rice, and Bananas can be obtained the native eases for little else in the way of food.

Most people that have visited the London parks in summer

are familiar with two if not more kinds of Musas used in the subtropical gardening, and cannot fail to appreciate their noble appearance. For outdoor decoration *M. superba* is the most extensively grown, and is by far the most suitable, owing to its dwarf compact habit, and the fact that it can endure moderate wind without injury to the leaves. In this country it is generally treated as a deciduous plant. In the autumn it loses its leaves, after which time it may be kept perfectly dry. The plants may be stowed away under plant stages or in vineries—in fact, almost anywhere, so long as a temperature of 45° to 50° is maintained. In spring they should be placed in a little heat and have a thorough soaking of water; they will then soon produce young leaves. It is also very useful for indoor decoration in summer, and stands well in a greenhouse or conservatory, and where foliage plants of a bold character are needed *M. superba* should certainly find a place. *M. Ensete*, when well grown, is a striking plant, and somewhat like *M. sapientum* in character, but has red midribs and a much shorter stem. This is a very useful and ornamental plant in a young state. *M. vittata* is another extremely handsome plant, and when exposed to full light and sun the variegated foliage appears to great advantage. This also has the character of *M. sapientum*, except in the markings of the leaves. Its only defect is the great height to which it grows. However, small plants are by no means to be despised, and are very showy arranged with larger stove specimens. *M. coccinea* is a very attractive plant when in flower, and although it was introduced as long ago as 1792, it is rarely seen in gardens. Its average height is about 4 feet, and more often it flowers at a less size. As the name implies, the flowers, or more strictly speaking the bracts, are scarlet, and last long in perfection. I am sure if it were generally known it would be extensively cultivated, for it would well repay for the little attention it needs. In addition to *M. vittata* already mentioned there are two other species—viz., *M. zebrina* and *M. sumatrana*, the latter of which is of recent introduction, that are remarkable for their variegated foliage, especially when in a young state, their leaves being banded and blotched with dark brown. As the plants become older their beauty gradually decreases, and by the time they are fully matured the leaves are of the normal green. I have only mentioned a few which I consider to be the most useful for general purposes. There are others that are very important from a botanist's point of view, and deserve to be brought under notice, but many of the species are not in cultivation in this country.

PROPAGATION.—The majority of the species can readily be propagated by suckers, which are produced freely from the base of the parent plant; the others have to be propagated by means of seed. *M. sapientum*, *M. Cavendishii*, and the other species belonging to that section, are readily increased by suckers; whilst *M. superba* and *M. Ensete* have to be propagated by seeds.

CULTIVATION.—For the fruiting kinds the soil must be exceedingly rich, consisting of good turfy loam, decayed manure, and a good sprinkling of rough sand. If the loam is too heavy a portion of leaf soil may be added, the pots, boxes, or beds in which they are growing being thoroughly drained. The latter is one of the most essential parts, as copious supplies of water must be given. When the plants are fruiting a good top-dressing of manure or liberal supplies of liquid manure should be given. A brisk heat should be maintained through the

summer, with plenty of atmospheric moisture. The night temperature should be about 70°, and in the afternoon the heat may rise to 90° with advantage at closing time; in the winter from 60° to 70° will be sufficient.—W. K.

MUSHROOMS FOR THE MILLION.

(Continued from page 360.)

PREPARING THE MANURE—FAULTY METHODS.

IN preparing manure for Mushroom beds, two what may be termed extreme practices have been more or less generally advocated, and one of them has been extensively adopted. These practices will be mentioned in order that they may be avoided, for both are faulty. The first and very common plan is to gather horse droppings from the stables daily, excluding all straw from them. By this mode, if there are few horses, a considerable time elapses before sufficient material is obtained for a bed. In the meantime the droppings are spread as thinly as possible in a shed, and at least a portion of them become so dry that there is little virtue left in them; and even if the mycelium spreads through the beds, the resulting crops are light, the Mushrooms small, and the gatherings few. On this old exhaustive process of preparing the manure, Mr. Gilbert of Burghley, a most successful grower of Mushrooms both in houses and the open air, remarks with great force, "To gather horse droppings, then lay them in a shed, dry them and turn them till there is no strength left in them, and then to expect Mushrooms, is to me something like madness." If, on the other hand, droppings are plentiful and enough is gathered in a short time for use, the material after sundry turnings is formed into a bed. In the majority of cases the heat is generated quickly and violently, and very frequently holes are made all over the bed with a dibber to reduce the temperature, which holes also serve as receptacles for lumps of spawn when the heat has subsided. This is not a sound mode of procedure, and if productive and long-lasting beds follow it is more the result of chance than of good management. The only really satisfactory reflection in connection with such beds is that it is somewhat difficult to prevent Mushrooms growing when good spawn is plentiful, and therefore, when similar spawn is placed in a suitable medium, good crops are easily produced.

The last-named system is unsound in two respects. First, it is in the nature of fermenting materials that heat quickly and violently to cool rapidly and suddenly, the inevitable result being that the bed is at first far too hot, and the means taken to cool it deprives it of its virtues—ammonia—and it is afterwards too cold for the requirements of the crop, and the Mushroom supply, if a supply follows, is necessarily of short duration. Secondly, when spawn is inserted in a smooth hole made with a dibber, and consequently tapering to a point, it is impossible that an angular substance can completely occupy the space that has been thus provided. There must at least be a cavity below the spawn, and there vapour, not always sweet, accumulates and prevents the growth of the mycelium. Much experience has shown that cultivators have too often to depend on weak and inferior spawn, but the same experience has also shown conclusively that much good spawn has been spoiled by the practice indicated. This ancient, tedious, and elaborate mode of collecting and preparing the manure is wrong in principle. Still

it may be urged that many good Mushroom beds have resulted from it. No doubt this is so, but failures have been still more numerous, and any practice that produces more blanks than prizes is essentially faulty. The evils of overheating incident to the above process have been frequently mitigated, and sometimes averted, by mixing soil with the manure, and other methods that are known to cultivators; but it is not for these—the few—that these remarks are intended, but for the far greater number—those on the one hand who know a little about the subject of Mushroom culture but not enough for insuring good beds always, and on the other that still greater body who know nothing about the practice, yet who have the means at disposal, and only need the skill for producing crops of great value. The object is to afford sound guidance for these by first stating errors that they may be avoided, and then submitting instructions as plainly and clearly as possible, that they may be followed with a fair prospect if not an absolute assurance of success accruing.

UNPURIFIED MANURE.

The next practice for avoidance is what may be termed the rough-and-ready one of first placing the manure, short straw and droppings, in a heap to heat, and when fermentation is brisk turning it over once or twice at the most, and then forming it into beds. Even if good crops of Mushrooms have followed, the practice is, notwithstanding, unsafe, and the material must have been specially sweet to begin with by previous fermentation and disturbance. The mycelium of the fungus will not permeate an impure medium. No plant requires purer and sweeter fare than the Mushroom does. Some other kinds of fungi will luxuriate in the most offensive matter, indeed such is essential to them, but this is certainly not one of them. If the manure of which a bed is made is in the slightest degree repulsive to the operator it will undoubtedly prove detrimental to the crop he is hoping to secure. So dainty is the Mushroom that it selects the healthiest, sweetest pastures for its home, and even soil that contains fresh manure is unsuitable for surfacing the beds. Avoid, then, on the one hand the old over-dried straw-excluded dropping-system, and on the other the use of rank materials resulting from insufficient turning and sweetening, and over-haste in making up the beds.

CORRECT PRACTICES.

Having submitted systems that should be avoided, endeavour shall now be made to detail the method that should be adopted in preparing manure for Mushrooms. Bearing in mind that the manure must be procured from those stables where the horses are fed chiefly or entirely with hard dry food, let it be prepared as follows—the object being the formation of beds either in the open air or in houses. Let the manure be gathered precisely as the grooms remove it from the stalls. By far the greater bulk of it will be straw more or less stained; still, exclude none of this straw, for any portion of it that may not be wanted for fermentation will serve a very important purpose. On the arrival of the stable refuse at the preparing ground let it be forked over, casting aside the long and comparatively clean straw only, such as in itself will generate but little heat if placed in a moderate-sized heap; the remainder, which may consist of from one-half straw and one-half droppings to two-thirds of the former and one-

third of the latter, to be mixed and formed into a heap as if building a hotbed for a frame. It will seldom be necessary to water it, except perhaps when prepared in August, or early September, and in very dry weather in spring; still, if water is needed to accelerate decomposition apply it. In the course of from four to six days, according to the nature of the manure and the weather, fermentation will be active and the mass hot. The work of turning and purifying must now commence, the former to be carefully done or the latter will not be effected. Every lock of straw and flake of manure which adheres together must be separated, the whole being thoroughly incorporated, the outside portions of the heap being placed in the centre. For the purpose of making the lower part of an ordinary hotbed, one turning after this will often suffice; but it will seldom indeed suffice for a Mushroom bed, first because the material would not be sweet enough, and secondly because decomposition would not be sufficiently advanced. For insuring both these conditions, which are important, from four to six turnings on alternate days are necessary. By this practice the mass is sweetened and the straw broken and partially decayed with the least possible loss of ammonia. The object should be to retain as much of this as possible consistently with the dissipation of other gases that are obnoxious alike to man and to Mushrooms. It should be observed that when much straw is decomposed with the droppings that tree leaves are not needed, and are only of real service when straw is excluded.

THE CONDITION OF THE MATERIALS.

The right condition of the mass for making up in the beds can only be determined by its appearance and by the sense of smell. It is possible that a heap of manure may be sweet and yet not be quite sufficiently decomposed for our purpose, and on the other hand it may be in a proper state of decay and yet not be sweet; but usually, if the work of turning and mixing is done with care and intelligence, purity and texture will be synchronous; both conditions will be attained at once, and the mass will be ready for use. As the manure and its preparation constitute the very foundation for success in Mushroom culture it is necessary to bestow careful attention on this matter. Persons having experience in heating with fermenting materials can without difficulty determine when the mass can be safely used; but it is certain that all who attempt to grow Mushrooms do not always employ the best medium for the purpose. They either reject too much straw, a frequent occurrence, or when they include it in the mass they make the beds too soon—that is, before the requisite degree of decomposition has been attained. It may be stated for the benefit of the inexperienced as nearly as possible the condition the material should be in for the purpose in question. In appearance there should be a homogeneous or inseparable mass of straw and droppings, the former preponderating, and broken in particles, none of which should exceed 9 inches, and few 6 inches in length, the majority being shorter; the mass should have a slightly greasy appearance, be warm brown in colour, and more than “warm” as regards temperature—in fact it should be as hot as the hand can be borne in it. And now to the test for purity. This is simple. Draw a large handful from the interior of the bulk and apply it to the nostrils; if the result is in any degree offensive another turning is needful, but

if no impurity is detected then the mass may be regarded as sweet. That is a negative test. A positive test is this—a rather pungent and somewhat agreeable scent having a suspicion of the odour of Mushrooms. When this is the result we have the most tangible evidence of possessing a medium in the best manner suited for the production of Mushrooms. There is yet another element that must not be overlooked—namely, that of moisture. If the mass is too wet its decay will be too rapid; if it is too dry a steady and continuous heat will not be maintained. Generally speaking, however, when a heap of fermenting manure is well managed the four important requisites—texture, heat, purity, and moisture, will be present in the proper relative proportions; but still, with the object of making that matter plain to all, it may be said that the material must be sufficiently moist to be pressed into a firm adherent mass, yet not so wet that a drop of water can be squeezed from a handful of it by the greatest muscular pressure. As clearly as possible the various tests have been submitted, in order that the uninitiated may be able to start on a firm and sound basis, with good hope of deriving profitable returns sooner or later in Mushroom culture. But for achieving success every detail must be carried out thoughtfully. The brain must guide the hand in everything, for, as Lord Bacon has forcibly recorded, “Neither the naked hand nor the understanding, left to itself, can do much; the work is accomplished by instruments and helps, of which the need is not less for the understanding than the hand.”

(To be continued.)

VIOLETS.

THE time has fully arrived when these most useful and sweet flowers should receive the attention necessary to ensure a good supply of blooms during the late autumn, winter, and spring months, for which they are so invaluable and so largely grown. These are flowers truly for the private gardener especially to make a mark of, as nothing is more likely to gratify an employer than a regular morning bunch of Violets when they are generally of uncommon occurrence.

The methods of cultivation adopted to secure the best results are numerous, each grower having some pet idea as to the best plan. Many have before this layered four or five of the finest runners in the pots and removed all those remaining, and will plant the rooted runners out in good soil; while some noted growers root the runners in boxes in a pit with a little warmth, and when the proper time arrives plant them out. In my opinion the former plan is much to be encouraged above the latter, as there is naturally a loss of energy as the result of severance from the parent plant of the runners. I have succeeded well with the following method of cultivation. When the plants were divided the finest crowns were selected with the strongest runners attached and planted out, and when the planting operation was finished each crown was examined and five of the best runners selected and layered at regular intervals round the central crown, removing all the remaining runners as well as the growing ends of those layered. Under favourable circumstances the runners speedily root and grow very rapidly, and by the end of the season splendid masses are the result, which for flowering cannot be surpassed. They can be carefully transferred into 32-sized pots, or the largest into 24's, some of the clumps being quite large enough to fill the latter.

The ground selected in which to plant them should have a western aspect. A border near a wall is very suitable, with a friable loamy soil, to which should be added a liberal supply of thoroughly decayed hotbed manure and leaf soil with some road sand if at hand. The manure should be well incorporated with the soil, after which they may be planted. A little trouble in the preparation of the soil will not be lost, as the result of the season's growth will depend in no small degree upon the character of the soil in which the plants are grown. The after treatment necessary is the constant removal of all runners as soon as they appear,

as the primary object of cultivation should be to reserve all available energy for the blooming period, which of course the growth of runners would draw upon. As the warm weather approaches the surface of the soil should be well mulched with manure or leaf soil, as it will greatly assist to keep the surface cool and moist. Previous to mulching, however, a good hoeing should be effected, so as to lessen the probability of having to do it afterward, also to assist in keeping the ground moist, which hoeing naturally does, because the soil is closer and less evaporation takes place.

Violets are, especially during hot dry weather, fiercely attacked by red spider, particularly if the position in which they are planted be dry and sunny. These should never appear if proper attention be paid to mulching and watering. The pest may also be checked by dusting the foliage with soot after showery weather or early in the morning when the dew is upon the foliage, as the soot will then readily stick upon the leaves and considerably baffle the enemy, or by watering the plants with soot water. Constant attention to watering is perhaps the best means to adopt to prevent their depredations, for if the plants suffer through drought they are sure to be infested with them. Towards the end of the season liquid manure may with advantage be substituted for clear water; it will assist growth and ensure finer flowers than would be likely to be produced without it. By the middle or end of September the plants should be carefully lifted and potted in loam, cow manure, leaf soil, and sand. The potting should be well done, arranging the soil well about the roots, and the pots should be placed in a shady position in a pit until the plants are again established, when they may be placed in their permanent winter quarters. If they are to be bloomed in a cold pit, the latter should be in a well-sheltered position with ample means for covering during very severe weather. A pit with a flow and return of 2-inch hot-water piping is much to be preferred, as the plants will flower better, and a large amount of labour would be saved during the winter months. The plants should be arranged near the glass. Pots would also be placed upon shelves in the conservatory for the sake of the perfume, and in cool greenhouses, and supplies could be expeditiously obtained by placing some plants in a warmer house. Instead of potting the plants they may be shifted with a ball of soil and planted in a prepared bed in a pit with the soil raised to within 9 inches or a foot of the glass, when they flower equally well. Free ventilation should be effected during all favourable weather to prevent damp accumulating too much about the foliage. The most useful kinds for winter blooming are Neapolitan, Marie Louise, double and single Russian. Belle de Chatenay is also a good variety with large double white flowers marbled with purple; Victoria Regina has double flowers of a very deep blue colour. The two latter are very desirable on account of the distinct colour of the flowers.—N.

CRYSTAL PALACE SHOW.

MAY 20TH.

THE first Sydenham Exhibition of the present year was not distinguished either by extent or remarkable beauty. The competition was not very keen in any class, and though several collections of good specimen plants were staged, the majority did not possess any special degree of excellence. In justice to Mr. Head it must, however, be noted that the materials were arranged as well as the formal system usually adopted there will admit.

Stove and greenhouse plants constituted one of the chief features, and most of the plants staged in the two classes devoted to them were satisfactory, some being really handsome. The best nurserymen's nine were from Messrs. Peed & Son, Norbury Nurseries, Streatham, all large, even, well flowered, and neatly trained specimens, amongst which *Genetyllis tulipifera*, *Aphelaxis rosea*, *A. macrantha purpurea*, and *Statice profusa* were particularly good. Mr. H. James, Castle Nursery, Lower Norwood, was adjudged the second prize for well-grown plants, but it was the opinion of many that the collection should have been disqualified, as it contained two examples of *Anthurium Schertzerianum*, though the class was for nine distinct stove or greenhouse plants. It was claimed in support of the Judges' decision that they were distinct varieties, but the chief perceptible difference was the fact that one plant was in its best condition with forty or more fine spathes, and the other a smaller example that was past its prime, several of the spathes showing signs of withering.

In the corresponding class for amateurs there were three competitors, Mr. B. Peed, gardener to Mrs. Tredwell, St. John's Lodge, South Norwood, securing the leading position with admirable specimens, fresh, even, and well flowered; *Erica ventricosa coccinea major*, *E. ventricosa magnifica*, *E. Cavendishiana*, and *Statice profusa* were the most noteworthy plants. Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was a close second with highly meritorious plants; and Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, was a good third.

Azaleas are always well provided for at the Palace Spring Shows, and they usually produce a brilliant display. On this occasion it was noticeable, however, that, except in a few of the leading collections, most of the plants were poorly flowered, and some were quite unfit for exhibition. The chief prizewinners amongst the amateurs were Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, who had some of the finest specimens; Mr. Ratty, gardener to R. Thornton, Esq., The Hoo, Sydenham, and Mr. B. Peed. In the nurserymen's classes the leading exhibitors were Mr. C. Turner, Slough, who had a beautiful collection of eighteen plants in pots 9 inches in diameter; Mr. H. James, and Messrs. Peed & Son. For nine *Ericas* the last-named firm gained the chief award with beautiful little fresh healthy plants about 2 feet high and flowering profusely; Mr. H. James followed with rougher examples; and Mr. B. Peed, who was the only exhibitor in the amateurs' class, received first honours for small fairly good plants.

Mr. C. Turner had the only collection of eighteen *Roses*, which well merited the first prize awarded for them. They were charming little plants in 8-inch pots, and were flowering profusely, also possessing extremely vigorous foliage. One example of *Marie Baumann* had twelve fine blooms, *Duke of Edinburgh* twenty blooms and buds, *Souvenir d'un Ami* fourteen blooms, *Charles Darwin* seventeen blooms, and others were similarly good. For nine Show *Pelargoniums* Mr. Turner also secured the chief prize with well-flowered specimens of moderate size, *Illuminator*, *Quadroon*, *Lady Isabel*, and *Digby Grand* being the best. Mr. W. Griffin, gardener to J. Willcocks, Esq., Eliot Bank, Forest Hill, followed with plants a little smaller than the preceding, but healthy and well flowered, Mr. H. James taking the third position. Messrs. Turner and Griffin were again the prizetakers in the same order for Fancy *Pelargoniums*; *Henry Bailey*, Miss E. Little, Duchess of Edinburgh, and *Clementine* being the best varieties in the first, and *Cloth of Silver* in the second. *Calceolarias* were not largely shown, Mr. Griffin having the best—dwarf compact plants with numerous well-formed richly coloured flowers. Mr. W. Satchell, gardener to H. Gover, Esq., Lyncombe, Sydenham Hill, was second with smaller plants and fewer flowers, but the latter were of good colour.

Orchids were represented by only two collections, one in each class for amateurs and nurserymen. In the former Mr. Salter, The Gardens, Selborne, Streatham, gained the first prize with vigorous examples of *Oncidium Marshallianum*, *Masdevallia Lindenii* and variety *pallida*, *Cypripedium barbatum*, *Oncidium concolor*, and *Cattleya Mossiae*. Mr. H. James secured the same position in the other class with similar plants, *Cypripedium niveum* and *Masdevallia Veitchii* being the most noteworthy.

Clematises were also shown by two exhibitors—Messrs. Jackman and Son, Woking, and R. Smith & Co., Worcester, both of the collections including admirable examples of beautiful varieties and were close in merit; but the precedence accorded to the Woking plants was chiefly due to the rather larger flowers borne by those specimens. The best varieties were the following—in the first collection, *Excelsior*, *Madame Van Houtte*, *Henryi*, *Blue Gem*, and *Sensation*; in the second *Gloire de St. Julien* were especially good.

Fine-foliage plants, with *Crotons*, *Dracenas*, and *Ferns*, constituted a large portion of the display, and the plants were all distinguished by considerable vigour, some being also well coloured. In the class for nine fine-foliage plants Messrs. Rann, Penfold, gardener to the Rev. Canon Bridges, Beddington House, Beddington, and H. James were the prizetakers in that order, the first collection including a fine *Croton interruptus* 6 feet in diameter. With nine *Crotons* Mr. J. R. Bird, gardener to J. A. Causton, Esq., Lodgemore, Alleyn Park, Dulwich, took the lead, having very well coloured specimens. Messrs. Rann and Penfold followed closely. For nine *Dracenas* Messrs. Bird, James, and Rann carried off the prizes. In the two latter classes some of the plants had the appearance of having been rather too plentifully oiled, a practice that should be discouraged by judges where it can be detected. Mr. Penfold secured the chief award for nine *Ferns* with a very choice collection of healthy plants, Mr. H. James taking the second position with smaller examples.

Amongst the miscellaneous exhibits were several noteworthy groups. Messrs. G. Jackman & Son had a choice collection of Clematises; Messrs. J. Carter & Co., High Holborn, a group of Pansies and alpine plants; Messrs. Laing & Co., Forest Hill, a group of new and choice stove and greenhouse plants; Messrs. Hooper and Co., Covent Garden, boxes of *Pæonies*, *Ixias*, and *Anemones*; Messrs. H. Cannell & Sons, Swanley, blooms of *Ivy Pelargoniums*; Messrs. Kelway & Son, Langport, Somerset, single and double *Pyrethrums*; and Mr. Hooper of Bath, collections of Pansies.

TWO GOOD BROCCOLIS.

SUTTONS' LATE QUEEN.—Many Broccolis are named in the papers about this time annually as being the best for use in April and May, but in my opinion this possesses every good quality which a Broccoli should. It grows compactly, is extremely hardy, the heads are of a fine size and never fail to come at the proper time. It has been in with us since early in April, and it will do good service until May is over. Besides this being the time of cutting its choice heads it is also the time to sow the

seed for next season's supply, and all who do this as soon as possible may rely on an ample return.—A KITCHEN GARDENER.

CARTER'S SUMMER BROCCOLI.—In this neighbourhood it has been found that this Broccoli has a very desirable peculiarity—not only is it the latest and one of the largest, but, what is almost of more importance where only a few varieties are grown and the consumption limited, it matures gradually. There are other varieties that, even though you make separate sowings, come in for use almost at the same time; and in small families, and especially suburban gardens, this is vexatious, as there is a surfeit at one period and none afterwards. Some of the heads are now coming into use, and will come on gradually until June, when Early Defiance and Early London Cauliflowers are fit for general use.—W. J. M., *Clonmel*.

PITCHER-PLANTS AT HOME.

NEPENTHES are peculiarly tropical; no plants are found in temperate countries. In the Malayan Archipelago they abound. On the Malayan Peninsula are several species—*N. sanguinea*, *N. Rafflesiana*, and *N. ampullaria*. So also on the island of Singapore the two last named are plentiful; indeed, *N. Rafflesiana*, which cultivators at home find hard to please sometimes, is there a great pest, coming up as a troublesome weed after the jungle has been cleared by fires. In Labuan every wet ditch and boggy piece of jungle is full of *Nepenthes*, which climb up the low shrubs and

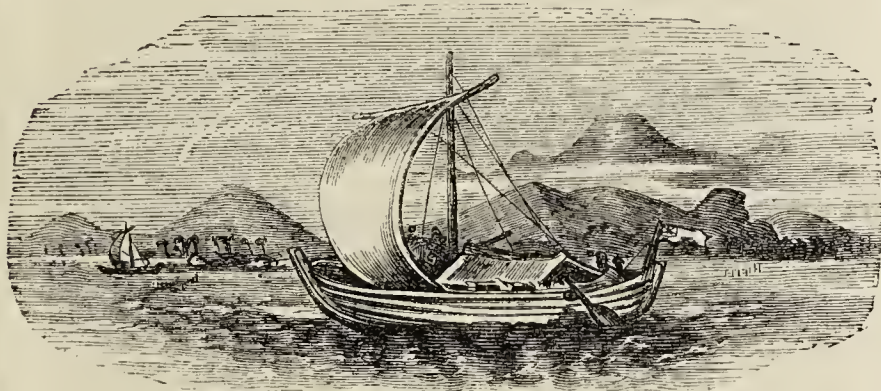


Fig. 83.

Bamboo hedges in the greatest luxuriance. Hundreds of pitchers hang amongst the leaves and spikes of bright maroon blossoms. But to see "*Nepenthes* at home" in reality—to visit the court and see the Pitcher-plants in all their regal magnificence, the finest and rarest of all known species in their native Bornean habitat—one must go to Kina Balu, a large and precipitous mountain, five days' journey from the mouth of the Tawaran or the Tampassuk rivers. These starting points are, however, a hundred miles or so north of the British colony of Labuan, and may be reached in a prau or native boat in from two to five days, according to the state of the winds and tides. These boats (fig. 83) are built by the Malays of native timber, secured together by wooden pegs and rattan canes. They sail well, and I have spent many days pleasantly in the little deck cabin, formed of a Kajang mat tied to light supports. In sailing from Labuan to Tampassuk one simply skirts the coast line, and can run inland to cook, or for wood and water when necessary. Fresh fish in quantity is easily caught *en route*, and Palm tops afford a delicious vegetable, being plentiful all along the coast. Squalls now and then come suddenly, and a salt-water bath is obtained *nolens volens*, and the chance of pirates pouncing down upon us in their long war praus is just sufficient to give a zest to the voyage. All Malays are good sailors, so that there is no anxiety as to the management of the boat. They are also clean and companionable little fellows and excellent company. Altogether these boat excursions in Borneo are very pleasant, and I often look back and wonder what luck betides some of the Malays whom I met there, and who endeared themselves to an English stranger by many acts of generous and disinterested kindness. The last time I went to Kina Balu [figured page 355, vol. iii., new series, October 20th, 1881] I was five days on the boat; winds were contrary, and currents disagreeably strong betimes. We landed one evening on Pulo Tiga, where *Phalænopses* grow in thousands on the trees near the shore. It is a large island, well wooded and watered, but with no permanent inhabitants. We cooked our dinner on the sandy beach, and ate it sitting on a large tree trunk as the sun sank below the horizon. The sunsets here are very beautiful, and Kina Balu looms up into the opal sky, its top crags tinted by the dying

sunlight. Morning and evening this mountain is often seen; at mid-day it is rarely visible, being enveloped in mists or cloud. Sea life and fresh air give one a keen appetite, and dinner is a subject of much importance to the traveller. Native cook-pots, carried in baskets (fig. 84), are brought out. They are made of bell metal, and supported on three large stones or pegs stuck in the sand. The Palm tops are cut and sliced to the fish, or a fowl or a pigeon just shot off the Casuarina trees by the shore, and chilies are added. Tins of soup and jam are brought from the boat, and at a score of little fires around us the Malays cook their rice, which with dried fish forms their staple food. My little Chinese "boy" was an excellent cook. Perhaps one reason for this was that we always shared the contents of the pot together! After dinner, coffee, and a cigar, darkness comes on, and brings with it many thoughts of home and friends. Then we waded out to the boat to sleep, thus avoiding the hungry mosquito of the jungly shore.

The boat is left at the Tampassuk river, and then comes a five-days walk to the mountain. There are no roads better than a buffalo track, and no bridges, so that one must needs ford all rivers and streams. You can buy a buffalo and ride at a snail's gallop, or you can walk. Buffaloes are slow and sure and of exceptional service in crossing streams when freshets come rushing down from the mountains often and suddenly. Now and then we pass native Palm-leaf huts and groups of Cocoa-nut and Betel-nut Palms, Bananas, and other fruit trees. A drink of fresh cocoa-nut milk, or rather water, is a revelation if a wineglassful of brandy be added. Bananas, and now and then a Durian or a Trap-fruit, are offered as presents by the natives. Sweet Potatoes, Maize cobs, Cucumbers, and Kaladi (roots of *Caladium esculentum*), become more plentiful as we get further inland. The coast people catch their fish and buy their rice, the inland folk buy their fish and grow their rice for themselves. At a little Dusan village below the slopes of Kina Balu I first found the women weaving cloth from the fibre of a native weed (*Cureuligo latifolia*). It is strong and durable, and is dyed with home-grown indigo. The whole apparatus for weaving, and specimens of the plant and its fibre in all stages of its manufacture, are now in the Kew Economic Museum. Many of the poorer natives here still wear a strip of the fibrous bark of a kind of Bread-fruit Tree (*Artocarpus elastica*) around their loins. This, as their only garment, is 5 feet long and 18 inches wide, and is prepared by maceration and beating with clubs until the tough bast tissues only remain. No doubt this is actually the first clothing ever worn in Borneo—veritable Fig leaves to the aboriginal people of the island. Inland the people are stout and shapely, the women being especially comely, with dark eyes and raven tresses. Their duty is to attend the crops as well as culinary and other indoor labours. They are very fond of ornaments, and wear anklets and waistbelts of metal, and ear ornaments of singular shape. They were ever attentive to us, and were delighted with the needles and thread and little looking glasses which we gave them in return for their presents of fowls, eggs, rice, and fruits of various kinds.

After five days of tramping over rocky paths and through rivers swollen by rains, now under a vertical sun, and anon drenched by sudden showers, we arrived at Kiau, a village on a ridge 3000 feet high running nearly at right angles to the slopes of the great Pitcher-plant mountain. Having been here once before we found old friends glad to give us a welcome, and we were glad to rest after our march. Here and there along our route Orchids and Ferns grew in profusion on the trees beside the streams. Bamboos 50 or 60 feet in height waved in the breeze, and every-



Fig. 84.

where the women were busy in the wet rice fields. Here at Kiau we hired guides for the mountain, and retired to rest happy to think we were so near to the main object of our journey. Even now we are two days' journey from the spot where the wonderful Pitcher-plants grow. First comes *N. Veitchii*, one of the best

and most distinct of all known kinds. Our illustration (fig. 86, page 427) shows a noble pitcher—two-thirds natural size only. Its habit of growth is quite different from that of all other species. It is purely epiphytal, having two-ranked or distichous leaves, some of which clasp the trunk or branch on which it grows. Fine native specimens are 3 feet long, bearing thirty or forty pitchers, living and dead; for this plant, like many Orchids, while growing at one end is dying away at the other. It is very variable; some forms have deep red pitchers, others are purely green, others again green blotched with red. In low shady forests near the river N. bicalcarata grows very luxuriantly, with stems like a Vine, 50 feet or more in height. Soon after I landed in Borneo I found this plant in another locality, and in the excitement of pulling down one of these rope-like stems I dislodged a whole colony of tree-snakes—not a welcome shower to fall near to one's head and face! Perhaps after all the poor snakes were more frightened than I was in the excitement of seeing this plant for the first time.

Of all the Pitcher-plants of Kina Balu none are more singular than N. Lowii, which is hard of texture, and in shape resembles an old fashioned wine flagon. It is epiphytal on Casuarina trees at 5000 to 6000 feet elevation, where every twig and leaf are dripping with moisture. Young plants of this species have never been seen, so that no idea can as yet be formed as to what shape is assumed by the pitchers of the lower leaves. On our first ascent of Kina Balu, weary, wet, and tired—I might add hungry also—I saw a brown and broken pitcher on the ground. Instinctively glancing upwards the sight here shown met my eye. Tired as I was I could not resist making this little sketch (fig. 87, page 431).

—D.

(To be continued.)

ROSE MADAME^s ALFRED CARRIÈRE.

(H. N. SCHWARTZ, 1880.)

THIS is one of the best early-flowering Roses of modern introduction. It has a vigorous climbing habit, the flowers of good shape and size, and nearly pure white. The buds are especially handsome, and as they are slightly Tea-scented, cupped, and the petals long, this Rose will, I anticipate, prove valuable for cutting. The pruning knife must, however, be sparingly used, and I suspect that in consequence of its too free use Madame A. Carrière has got the name of a shy bloomer. At the Experimental Garden, allowed to run wild against a south fence, it is equalling such varieties as Madame Berard and Bouquet d'Or in freedom of growth and bloom. It does not, however, appear to possess much Tea blood. It is well adapted for a pillar Rose, and seems quite hardy, as it was planted out during the winter of 1880-81, and was uninjured. We are too apt to overlook new Roses however good unless placed under either of the usual categories from which show Roses are drawn. It may not make an exhibition Rose, but in the semi-expanded state the flowers are very beautiful.—T. LAXTON, Bedford.

READING HORTICULTURAL EXHIBITION.

MAY 18TH.

THE weather at the last autumn Show of this Society proved so unfavourable that considerable loss was experienced owing to the greatly diminished receipts at the gates, and at one time it seemed likely that there would be a rather serious demand upon the reserve fund. Fortunately, however, the numerous friends of the Society came to the rescue, and a small but clear satisfactory balance was the result. At the first Show of the year on Thursday last everything proved most favourable to a continuation of the previous and but briefly interrupted success. The weather was brilliantly fine, the exhibits even more numerous than usual, and visitors crowded the grounds and tent throughout the afternoon. The picturesque Abbey Ruins in the Forbury Gardens was again the chosen site for the Show, and wisely too, for a more suitable position could not be easily found, the antiquity of the surroundings adding greatly to the interest of the tastefully arranged plants and flowers. The large tent was completely filled with the two latter sections of the exhibits, the fruit and vegetables being placed upon stages in what was originally another apartment of the Abbey.

Stove and Greenhouse Plants.—One of the champion exhibitors in the classes devoted to these plants—Mr. E. Tudgey, gardener to J. F. Greswolde Williams, Esq., Henwick Grange, Worcester, who has already this season scored several substantial victories—appeared in the lists at Reading with his customary success, and doubtless to the satisfaction of everyone except those immediately concerned in the contest. Three very good collections of twelve stove and greenhouse plants were shown, Mr. Tudgey taking the lead with admirably grown even specimens, all very fresh notwithstanding their recent travels. The magnificent *Erica ventricosa magnifica*, which is 5 or 6 feet in diameter, of fine globular form, was flowering

extremely well, and has never appeared to better advantage than it did on the slope at Reading. *E. Cavendishiana*, *Aphelexis macrantha purpurea*, *Pimelea decussata*, *Franciscea calycina major*, *F. confertifolia*, and *Anthurium Schertzerianum* were all similarly handsome, with several others. The second position was accorded to Mr. Lees, gardener to Mrs. Marsland, The Wilderness, who also had some praiseworthy plants, healthy, vigorous, even and well flowered. A globular *Stephanotis floribunda* was one of the most noticeable specimens, *Franciscea calycina major* and *Erica Spenceana* being admirably flowered, fresh, and neat. Mr. Bennett, gardener to M. Loneragan, Esq., Cressingham, was third, but there were only a few points against his collection, some of the plants being slightly rougher than the preceding. *Acrophyllum venosum*, 4 feet in diameter, was a handsome plant, *Erica ventricosa magnifica* being similarly satisfactory.

For six stove and greenhouse plants Mr. Mould, Pewsey, and Mr. Mortimer, gardener to Major Storer, Purley Park, gained the awards, the latter having *Bougainvillea glabra*, *Plumbago capensis*, and *Aphelexis macrantha rosea* in good condition. Mr. Tudgey had the best single specimen—*Dracophyllum gracile*, about 5 feet in diameter and beautifully flowered. Equal second prizes were adjudged to Mr. Mould of Pewsey, and Mr. Hope, gardener to the Hon. R. Boyle, Purley, the former with *Imantophyllum miniatum* 5 feet in diameter, and bearing twelve fine trusses, the latter for a neatly trained *Aphelexis macrantha purpurea*. In the amateurs' class for four plants Mr. Hope was the only exhibitor, and secured the leading award with a well-flowered *Dendrobium Devonianum* in a basket, a tall specimen of the brilliant *Tropæolum Firc Ball*, a good *Bougainvillea glabra*, and a vigorous *Cytisus racemosus*.

Azaleas.—These invariably add greatly to the brightness of a show at this time of year, supplying a warmth of colour that is most effective if they are judiciously arranged with other plants so that there is no approach to a glare. A fine bank was formed at one end of the tent; and though the small plants generally were in better condition than the larger, yet all were satisfactory as regards the number of blooms they bore. For nine specimens Mr. Lees was adjudged chief honours, his examples being large, even, and fairly well flowered; *Reine du Pays Bas* and *Stella* were the two most noticeable. Mr. Armitage, gardener to N. Clarke, Esq., The Cedars, followed with smaller plants; Mr. Atkins, gardener to Col. Lloyd Lindsay, Lockinge Park, Wantage, being third with similar specimens, but both collections were well flowered and included some good varieties. The best six Azaleas were shown by Mr. Lockie, gardener to Lord O. Fitzgerald, Oakes Court, Windsor, who had neat examples of *Apollo*, *La Superb*, *Lady Scott*, *Comtesse de Beaufort*, and *Charmer*.

Groups.—The next important feature of the Show were the groups in competition, the chief class being that for a collection of plants arranged for effect in a space 12 feet by 10 feet. In this four tasteful groups were entered all free from too much formality, flowering plants being employed in good numbers, but well balanced with Ferns and other fine-foliage plants. Mr. Lees secured the leading position with a bright and pretty arrangement of Azaleas, Begonias, Ixoras, and *Dendrobiums* edged with Ferns, *Fittonias*, &c. Mr. Bennett followed closely with a similarly unpretentious but pretty group, in which was a well-grown plant of *Boronia elatior*, with numerous *Calceolarias*, *Ericas*, *Begonias*, and *Gloxinias*, with a background of Palms and Crotons, and a margin of *Peperomias* and *Fittonias*. Mr. Burbidge, gardener to B. Simonds, Esq., Reading; and Mr. Pursey, gardener to C. West, Esq., Fox Hall House, being awarded equal third prizes for less diversified but neat groups. For the smaller groups 6 feet by 4 Mr. Pound, gardener to G. Nares, Esq., The Warren, Caversham, gained the leading prize with a bright collection, in which *Pelargoniums* chiefly predominated; Mr. Sumner, gardener to W. Millard, Esq., Reading, with Mr. Burgess, gardener to Col. Clayton, securing the second and third prizes respectively.

Two groups of *Rhododendrons* forming a bank each side of the tent near the highest portion of the slope were very conspicuous, but they had the appearance of being slightly crowded, a defect that might have been easily avoided. Mr. Furton, gardener to T. Hargreaves, Esq., had a good selection of varieties, the plants also being well flowered and healthy, some of the trusses being particularly fine. Mr. Ashby, gardener to W. Fanning, Esq., had some large specimens, but too closely placed, though the heads were large and the colours bright.

Fine-foliage Plants.—Several handsome collections of these were contributed, most of the plants being in a highly satisfactory condition. Mr. Tudgey had the best six extremely good specimens, his *Pritchardia pacifica* being a noble example of a grand Palm. *Kentia australis* and *Cycas revoluta* were also large and healthy, but *Croton Mortii* was the most telling plant of all, for though the specimen itself was of moderate size, the leaves were so highly coloured and so large that there was scarcely a more effective plant in the Exhibition. Mr. Mortimer was a good second, having *Latania borbonica*, *Yucca aloifolia variegata*, and other choice plants in satisfactory condition. Mr. Bezan, gardener to H. J. Simonds, Esq., Caversham, took the third position with good examples of *Croton variegatus*, *Phoenix dactylifera*, *Maranta zebra*, and *Croton majesticus*. In the amateurs' class for four plants Mr. Hope was accorded chief honours for *Alocasia Thibautiana*, 6 feet high; *Pandanus Veitchii*, *Leucostegia immersa*, and *Cissus discolor*, the last three

being of moderate size, but well grown. Mr. Burgess followed with fair specimens, the best being *Hibiscus Cooperi* brightly coloured.

Ferns.—All the exhibits in these classes were characterised by a most pleasing freshness and vigour such as too frequently are wanting in the Ferns shown on many occasions at other provincial towns. Mr. Mortimer's premier collection of six in the open class was especially deserving of praise in this respect; *Davallia Mooreana*, *D. bullata*, *Adiantum gracillimum*, and *A. pentadactylon* being in admirable condition. Mr. Tudgey followed with a less satisfactory collection, though it included good examples of *Hymenophyllum demissum* and *H. nitens*. Mr. Bezan was third with *Phlebodium aureum* and *Gymnogramma chrysophylla* good amongst others. In the amateurs' class for four Mr. Bennett was the most successful exhibitor, gaining the chief award with *Davallia bullata*, *Gleichenia flabellata*, *Adiantum farleyense*, and *Leucostegia immersa*, all very fresh and healthy, Mr. Hope following closely with neat plants.

Lycopods.—In very few shows are better specimens of Selaginellas staged than at Reading. Mr. Mortimer is especially skilled in the culture of these, and for several years his plants have attracted much admiration both at the spring and summer shows. The plants are trained in a conical shape 2 feet or more high, the chief varieties being *S. Martensi variegata*, *S. caesia*, *S. apus*, and *Lycopodium squarrosus*. Mr. Hope was a close second with specimens very similar in character and merit; *S. stolonifera*, *S. Kraussiana aurea*, *S. apus*, and *S. formosa* being the most noticeable.

Pelargoniums.—Several fairly good collections of these were staged, some of which would doubtless have taken a high position in the competition at the Royal Botanic Society's Show on the previous day. For nine Show varieties in 8-inch pots Mr. Ashby won chief honours with freely flowered specimens of *Triomphe de St. Mandé*, *Crimson King*, *Empress*, and *Virgin Queen*; the second-prize collection from Mr. Mortimer being healthy, but not remarkable for the abundance of their flowers; some, too, were not quite sufficiently advanced, Dr. Masters and Duchess of Edinburgh were the best. The leading amateurs' collection of four Show varieties was from Mr. Burgess, Messrs. Hope, and Mayne, gardener to Miss Moon, Reading, following, all being rather small but healthy plants. The Fancy varieties were not largely represented.

Cut flowers were abundantly shown and were generally of very satisfactory quality, the collection including many choice stove flowers, Orchids, &c. The principal prizetakers were Messrs. Burgess, G. Phippen, Hope, Ross, gardener to C. Eyre, Esq., Welford Park; C. Turner, Lockie, and Tranter. Mr. C. Turner of Slough gained the chief prize for cut Roses for exceedingly handsome flowers, of rich colour, good form and substance. Messrs. Kelway & Son, Langport, Somerset, had a magnificent collection of single and double *Pyrethrum* blooms, three boxes of each, including a large number of choice varieties that attracted much admiration. Vases of flowers were also numerous, two long tables being filled with the exhibits in these classes. Mr. G. Phippen and Miss K. L. Phippen were the chief prizetakers for vases, wreaths, and buttonhole bouquets, all the arrangements being extremely tasteful. One bridal wreath of choice white flowers comprising double Tuberoses, Gardenias, Lilies of the Valley, white Azaleas, Roses, &c., was charmingly arranged.

Fruit.—Though early in the season for fruit-exhibiting, Grapes, Strawberries, and Melons were fairly represented. Mr. Ashby had the best black Grapes—two bunches of Black Hamburg well coloured. Mr. Atkins followed with moderately good bunches of Madresfield Court. The same exhibitors took the prizes in a reversed order for white Grapes, Foster's Seedling being the variety shown. Strawberries were well shown by Mr. Mortimer and Mr. Bowie, gardener to C. J. Andrewes, Esq., Reading, who were first and second respectively, both showing President; but the first-named collection was superb, the fruit large and richly coloured. Mr. Mortimer also had a tray of eighty handsome fruits of the same variety equally as good as those competing, Mr. Bowie having fine examples of James Veitch, both being highly commended by the Judges. Several good Melons were shown. Mr. Atkins was awarded a certificate for a variety named Lockinge Conqueror, said to be a cross between Hero of Bath and Hero of Lockinge. It is a well-netted globular yellow-fleshed fruit with deep flesh and rich flavour. The same exhibitor had a large oval-fruited variety named Buscat Seedling, which was highly commended, a similar recognition being accorded to fruit of Hero of Lockinge shown by Mr. Howe, gardener to Sir R. Sutton, Benham Park; and Mr. Wells, Foxhill.

Vegetables.—In the class for collections not limited as to number Messrs. Lockie, Read, gardener to F. Wilder, Esq., Purley Hall, and Burbidge were the successful exhibitors, gaining the prizes in that order with clean, fresh, well-grown samples. Cauliflowers, Mushrooms, Peas, Potatoes, Rhubarb, Lettuces, were all well shown, chiefly by Messrs. Millen, Lockie, Bowrie, Turton, and Atkins. The competition for Messrs. Sutton & Sons' prizes for a brace of Cucumbers was extremely keen, twelve lots being staged. Mr. Lockie gained the chief position with two even and neat examples of Model; Mr. Millen followed with Suttons' Improved Telegraph, and Mr. Mortimer was third with Model, the three exhibits being very close in quality. Mr. Bowie and Mr. Heaman, gardener to J. Skurray, Esq., were fourth and fifth respectively.

The general management of the Show was very satisfactory, much credit being due to the Honorary Secretaries, Messrs. R. D. Catch-

pool and G. W. Webb, for their efforts to render the Exhibition a success.

ABOUT WASPS.

MR. TAYLOR, in his letter on page 363 of your issue of the 4th inst., has furnished us with a history of his wasp account for eight years, which, as far as it goes, would show that there was no immediate connection between the abundance or scarcity of spring and summer wasps. For example, the year of the smallest number of queens coincides with the largest number but one of nests, 408 to 169, or one nest for about 2.4 queens; while the smallest number of nests coincides with the largest number but one of queens, 71 to 3184, or about 1.45; while the year of the greatest spring abundance (enormously so) stands third in the list of nests; and the four years of greatest spring abundance produced 12,327 queens and 440 nests, and the four years of spring scarcity 3381 queens and 475 nests.

My own experience of very old date certainly gave a different result, and I presume I did not carry on my observations long enough, for though the general result of Mr. Taylor's figures is "more queens fewer nests," 1875 and 1876 are exceptions.

I began to note the facts in consequence of a letter of Dr. Bree's in the "Zoologist" of 1849 (page 2614), which is too long for transcription, and as long as I cared to continue to observe the result was as I stated; this is a fact, and more than a shadow of a proof. Now, as I said before, I hear now and then of the sums which my neighbour (not near enough to affect my supply) has paid, and I never remember to have been told of his having paid a large sum without finding a scanty supply in the autumn, though it is possible such a matter may have escaped my memory.

But "Y. B. A. Z." asks my opinion of wasp economy. Before I reply I must ask his meaning. Will he also be good enough to interpret the following sentence?—"I must agree with Mr. Taylor that every wasp appearing in spring is a fertilised queen; with the additional proviso that the smaller queens are probably unfertilised." Does he mean that the smaller queens do not appear in spring? This would contradict the subsequent paragraph, but what else does it mean? I cannot believe that the four thousand queens which he destroyed caused the scarcity of workers, unless I believe also that the 2500 destroyed by my neighbour cleared the country for miles round.—DUCKWING.



THE remarkable *ARISTOLOCHIA GOLDIEANA* is now opening two fine blooms in the Royal Botanic Society's gardens, Regent's Park; also *Gardenia Stanleyana* is in bloom, and both are worthy of inspection.

— It is said that in Australia the district of Victoria is suffering from a prolonged DROUGHT. Only 2½ inches of rain have fallen during the present year; the effect on the crops is reported as being disastrous.

— "A THIRTY-YEARS SUBSCRIBER" is anxious to know if the old DOUBLE YELLOW AND DOUBLE BLOOD-RED WALL-FLOWERS are still in cultivation. He remarks they used to be plentiful years ago, but he never sees them now, and he thinks there are others beside himself who would be glad to obtain these old favourites.

— WE are informed that Mr. Francis George Heath has accepted the editorship of the JOURNAL OF FORESTRY, the new volume of which, just commencing, will give considerable space to all subjects interesting to all lovers of the country.

— WE learn that the entire stock of the new MELON WILLIAM I., for which Mr. Howe of Benham Park obtained a first-class certificate at Kensington on Tuesday last, and a similar award at Reading Autumn Show last year, has passed into the hands of Messrs. Sutton & Sons, Reading, for distribution.

— A PRESTON correspondent states that a SEVERE FROST on

the 16th inst. did much damage to Potatoes in that neighbourhood. We also learn from Lincolnshire, Norfolk, Kent, Durham, and Nottinghamshire that recent frosts have seriously injured Potatoes both in fields and gardens.

— WE may remind our readers that the MANCHESTER WHITSUNTIDE SHOW to be held in the Royal Botanical Society's Gardens, Old Trafford, will commence on Friday next, the 26th inst., and continue until the following Friday, June 2nd. Plants constitute the chief attractions at this Show—Orchids, stove and greenhouse plants and others being particularly well provided for, the prizes being very liberal in all the principal classes.

— ON Tuesday and Wednesday the 30th and 31st inst. the SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY will hold an Exhibition of plants, flowers, and fruits in the Cutlers' Hall, thirty-eight classes being provided; in the first three of which, for stove and greenhouse plants and Roses, the prizes vary from £5 to £1.

— ONE of the chief attractions now at Kew is the numerous beds of GHENT AZALEAS situated a short distance to the right from the Sion House Vista. The different varieties of *A. pontica* and *A. mollis* are very attractive, and will continue in beauty for some time. The colours vary from almost pure white to deep rose, with all the intermediate shades of orange, pink, yellow, and lilac. They are charming plants for outside borders as well as for growing in pots for the conservatory, and their value for either purpose cannot be overestimated.

— IN the same gardens what is known as the Hollow Walk or Rhododendron Walk is all aglow with some of the choicer varieties of RHODODENDRONS, which are planted along the bottom and slopes of the walk. Amongst the most conspicuous is *R. Broughtoni*. This must rank as one of the best of all Rhododendrons, producing trusses of flowers of enormous size and deep crimson lilac; the upper petals are dotted with a dark brown. One plant is carrying nearly one hundred trusses of bloom, and is indeed a sight not soon to be forgotten. A tall-growing variety, named *Mrs. Standish*, is well adapted for planting in the centre of clumps. The flowers are pure white except a few spots of yellowish green on the upper petals; the trusses are a fair size and good form. *R. Johnsonii* in habit is very compact and distinct, closely approaching *R. arboreum* in flower and foliage, and well adapted for planting as single specimens in a sheltered position.

— THE ST. IVES (HUNTS) HORTICULTURAL SOCIETY will hold their annual Flower Show in the grounds of H. Goodman, Esq., Somersham Road, on Thursday, July 13th.

— WE are informed that at the recent Agricultural Exhibition, held at Port Elizabeth, a silver medal was awarded to Messrs. SUTTON & SONS of Reading for their collection of grasses, seeds, models, &c., this being the highest award for seeds made at the Exhibition.

— A GARDENER'S WIFE sends the following recipe for making DANDELION WINE, which is almost identical with that published last week:—"Flowers should be gathered early in May, or as early as possible. To every gallon of water add one gallon of flowers, 3 lbs. of moist sugar, one orange, and one lemon. Place the flowers in a thin bag and boil for half an hour, pare the fruit, remove the bag, and add the sugar, rind, and a small piece of ginger; boil for half an hour, slice the fruit into the pan or tub, and when ready add the boiling liquor; when cool use a little yeast. It may be put in barrel in three days, filling up as required. When kept a few months it is very bright and good." Mr. Taylor, Acacia, also communicates the following:—"Pour 12 gallons of boiling water over 4 gallons of Dandelion flowers, picked clean from the heads as you would Cowslip flowers. Let

it stand till cold, then strain it and add 3 lbs. of lump sugar to every gallon; boil it half an hour, then put it into a tub. When cold add the rind of twelve lemons and twelve oranges and the juice of each; ferment with a little yeast for four days, then put it in the cask, and in a week stop it down. Let stand six months, then bottle off, or it can be drawn from the cask."

— THE first Exhibition of the NORTHAMPTONSHIRE HORTICULTURAL SOCIETY will be held on the Northampton Racecourse on September 21st and 22nd. One hundred and thirty-two classes are provided for plants, cut flowers, fruit, and vegetables, the three principal sections being 1, open to all exhibitors; 2, for the county gardeners and amateurs; and 3, cottagers. The prizes are liberal in all the chief classes, and the Society is under distinguished patronage. A very practical Committee has been elected, and a satisfactory Exhibition may be confidently expected.

— MESSRS. THOS. CHRISTY & Co., 155, Fenchurch Street, London, E.C., have submitted to us some neat samples of BOXES FOR SENDING FRUIT BY RAIL. They are made cheaply of stout wood, planed and hinged, with fastenings and holes, through which a string can be passed and sealed on the top to prevent all tampering or pilfering. Moveable wooden divisions keep each Peach or other fruit in its place. Wrapped in tissue paper they fit in firmly. The boxes will stand many journeys, and are all stencilled "Fruit."

— A CHARMING little shrub flowering at the present time is CYTISUS SESSILIFOLIUS, which is very attractive in several nurseries, but especially so in Messrs. C. Lee & Sons' arboretum, Isleworth, where it is largely represented by handsome specimens of various sizes from 2 to 4 or 5 feet in height, and as much in diameter. It is remarkably compact, and, flowering so freely as it does, it is unquestionably entitled to a foremost position amongst early-blooming dwarf shrubs. The leaves are sessile on the young branches, as the specific name indicates, each consisting of three small round leaflets of a fresh green colour. The flowers are very bright yellow, about half an inch long, with a heart-shaped standard as much in diameter, and they are borne in short terminal racemes of four to six flowers upon the young shoots of the current year. It is surprising that this is not more frequently seen in gardens, for it is one of the oldest of our introduced shrubs, having been in cultivation upwards of 250 years.

— SOMEWHAT similar in general appearance to the above is GENISTA HISPANICA, but it is dwarfer and of stiffer less graceful habit than the Cytisus. In Mr. Parker's nursery at Tooting it seems to thrive especially well, and some scores of plants there now are literally a mass of bright yellow flowers. A few specimens along the margin of a shrubbery or in the borders of herbaceous plants have a very pleasing effect.

— A ROSE-GROWER writes:—"Of several new Roses recently shown by Messrs. W. Paul & Son, Waltham Cross, at Kensington, the one which pleased me the most—though it apparently did not give the Committee satisfaction—was the HYBRID PERPETUAL ROSE QUEEN OF QUEENS. The blooms are large, full, and of good form, the colour being a very distinct pink shade, most delicate and pleasing. Another good quality of the variety is its freedom of growth and floriferous habit, the foliage being particularly vigorous. Mr. Paul states that it is the result of a cross between a Hybrid Perpetual and Maiden's Blush. This I consider—and I am not alone in my opinion—is likely to become a favourite both for exhibiting and ordinary garden culture." This variety was certificated at the recent Show of the Royal Botanic Society, Regent's Park.

— IN reference to the SUMMER SHOW OF THE ROYAL BOTANIC SOCIETY held last week, it is worthy of remark that a

general opinion prevailed amongst the visitors best qualified to judge that it was one of the prettiest which the Society has held in recent years. There was not a preponderance of any particular class of exhibits, and in the arrangement, for which Mr. Comber deserves great credit, the whole was most tastefully harmonised. The general quality of the exhibits, too, was very satisfactory. In addition to those mentioned there last week, Messrs. R. Smith & Co. of Worcester had a pretty collection of CLEMATISES, for which a silver medal was awarded. The plants were rather smaller than those from Woking, but the flowers were of good size and colour, the varieties being some of the best in cultivation. Gloire de St. Julien, Lord Nevill, Grand Duchess, Verschaffelti, Lawsoniana, Sensation, and Impératrice Eugénie were amongst the most noteworthy. Our attention having been called to the absence from our report of the same Show, of dishes of ALEXANDER PEACHES AND BIGARREAU NOIR DE SCHMIDT CHERRIES sent by Mr. Rivers, we learn that the Princess of Wales and three children, and the Duke and Duchess of Teck, took such a fancy to them that the fruit was divided amongst them. Mr. Rivers will probably not object to this mode of adjudicating on his productions, even although the results were not communicated directly to the press.

— IN BATTERSEA PARK the favourite promenade now is the Wilderness. This is at the extreme east end of the park, and was only opened last year. Near the entrance at the north-west corner is what is known by visitors as "Mount Pleasant"—a huge mound formed with some ten thousand loads of soil and planted with trees, the seats under which are always occupied in fine weather. A better view can be had of the park from there than from any other standpoint. At intervals in the "Wilderness" are a series of large dells, which form a distinct feature of the park. In one of them Solomon's Seal luxuriates with variegated and green Comfrey and a natural carpet of Veronica Chamædrys; in another depression Ferns predominate, and in another Lilies abound. The shrubbery banks are now attractive with many flowering shrubs, especially Weigelas, which are in great variety and very beautiful, while the double scarlet Thorns are extremely bright. This department of the park is decidedly picturesque, and the total absence of formality both in the disposition of the ground and the planting of it contrasts effectively with the other parts where flower gardening is so well represented. Those who enter the park near the Victoria bridge and pass along by the route indicated, now the deciduous trees are flowering, will be gratified and disposed to think if Mr. Rogers is not proud of his work he ought to be, for it is undoubtedly well done.

— THE usual monthly meeting of the METEOROLOGICAL SOCIETY was held on Wednesday last at the Institution of Civil Engineers, Mr. J. K. Laughton, F.R.A.S., President, in the chair. Miss W. L. Hall, Mr. E. J. Pearson, Dr. J. R. Somerville, and Mr. W. J. V. Vandenberg were elected Fellows of the Society. The following papers were read:—"Mechanical Conditions of Storms, Hurricanes, and Cyclones," by W. F. Stanley, F.M.S. "On the Diurnal Variation of Wind and Weather in their Relation to Isobaric Lines," by the Hon. Ralph Abercromby, F.M.S. By constructing synoptic charts at different hours of the same day, and by comparing the wind and weather records at the different hours, and examining their relation to mean curves of diurnal variation, the author shows that the mean diurnal increase of the wind's velocity is explained by the fact that for the same gradient there is more wind by day than there is by night. The mean diurnal veering of the wind is explained by the fact that in cyclones the wind is a little more incurved, and in anticyclones a little more outcurved, by night than by day. The mean diurnal increase of the frequency of rain during the day hours is explained by the fact that in any given cyclone the area of

rain is larger by day than by night. The diurnal changes of every element are super-imposed on the larger general changes, and are independent of each other. Great stress is laid on this point, both as explaining and classifying many meteorological questions, and as simplifying the problem of weather-forecasting. The author gives a simple hypothesis, from which it appears that the diurnal veering and increase of rain follow as a natural consequence of the diurnal increase of velocity.

TUBULAR FLOWER AND TREE STAKES.

MESSRS. BROOKES & Co. of Cateaton Street, Manchester, have submitted to us examples of their new tubular stakes. The invention is based on the fact that a tube is stronger than a solid rod of equal weight. The inventors claim for these stakes the following advantages—cheapness, lightness, strength, durability, stability, compactness, sightliness, stiffness, resistance to wind-pressure, and the easy and convenient manner in which they can be packed away. We do not think the claims unreasonable. One thousand assorted stakes, forty 7 feet, sixty 6 feet, one hundred 5 feet, one hundred and fifty 4 feet, two hundred and fifty 3 feet, and four hundred 2 feet, can be packed in the galvanised wire-

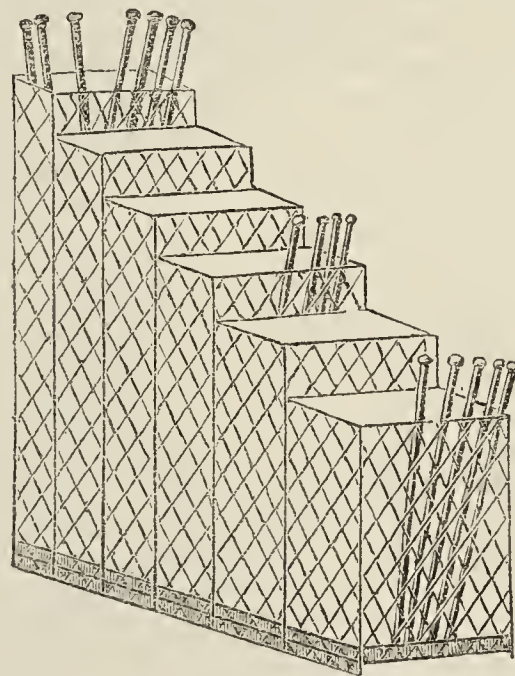


Fig. 85.

worked box (fig. 85), occupying a floor space in the tool house of only 3 feet by 1 foot 4 inches. They are the best iron stakes we have seen, admirably adapted for supporting young trees and flowers, and will be generally useful in gardens.

FERTILISERS—POTASH AND MAGNESIA:

"INQUIRER" at page 381, in referring to the extraordinary results obtained by the Cork Agricultural Society with kainit as a manure for Potatoes, uses the following words—"He [that is myself] states that if the increase observed was not due to the potash of the kainit it is difficult to understand how such results should have come about." As everything written by "INQUIRER" has been pervaded by a spirit of fairness I must suppose that what I wrote has been misunderstood, or possibly not properly attended to, for what I said was exactly the opposite. The notice I saw of the experiments referred to the result of these as a proof that potash was, sometimes at least, of peculiar value for Potatoes as it existed in kainit. Seeing that ten times the quantity of potash in farmyard manure, though coupled with everything else needed by plants, was required to produce results equal to that secured by the application of kainit I ventured to doubt that the potash in the kainit had anything to do with the manure; and if "INQUIRER" will refer to page 368 he will see that this is the case.

Neither has he apprehended my meaning in the matter of my query—it was a query, not an assertion—in regard to the hurtfulness of the chloride of magnesia which exists in kainit. "INQUIRER" mentioned one case of harm being done by kainit. Several other instances I have heard of, and in a work before me the writer confidently asserts that the magnesian chloride was the

cause of the mischief. When not more than the quantities named in the Cork experiment is used there is no danger. It is said that the addition of 20 lbs. of air-slaked lime to the hundredweight makes the salt harmless.

"INQUIRER" refers to the beneficial results obtained by the use of an ammoniacal phosphate of magnesia, or rather a manure having that salt for its basis, but that is a very different thing. I suppose "INQUIRER" to refer to "fimur," of which Dr. Hogg reported in the words your correspondent uses, and which produced such exceptionally favourable results on Turnips in the experiments at Easter Ardress. Magnesia is one of the recognised wants of plants, and, while apt to do mischief when used excessively in the form of chloride, there is some probability that when used sparingly it may be of real benefit. "INQUIRER'S" reasons are, as he says, at least very feasible, and probably right; but if so he furnishes one other reason for sprinkling manure heaps with kainit. When "INQUIRER" quoted Voelcker to show that crude potash salts were harmful under certain circumstances to a crop of Mangolds, the natural inference was that he attributed the mischief to the potash. I doubted this, still doubt it; suspected the saddle had been placed on the wrong horse, and still think so.

Some of our foremost chemists doubt if soda be essential to plant-growth. I have no wish to dispute the point; but having experimented with common salt and seen distinctly beneficial results follow even on Potatoes, I was greatly inclined to believe that the favourable results obtained by the Cork Society were due, in part at least, to the presence of the sodic chloride in the kainit. This salt is often present to the extent of 45 (sometimes more) per cent., and even in the higher grades it often reaches 30. I have a large collection of analytical tables beside me, but I find that the magnesia in the ash of Potato tubers ranges from 2.5 per cent. to no higher than 6.6 per cent., and that only exceptionally. The stems and leaves contain much more, however; and it is quite conceivable that on land deficient in magnesia the tubers might suffer, because of the stems appropriating all available magnesia. In such a case a manure containing magnesia might produce otherwise unaccountably large crops; hence, possibly, the very favourable action of kainit in the Cork experiments, and the "fimur" in the others referred to. The matter requires investigation, however.

The burning of some clay soils is followed with beneficial effects; yet this burning dissipates the nitrogen, lessens the amount of soluble phosphoric acid, but increases, often largely, the amount of soluble potash. The result of this is always increased crops. If anything proves the addition of potash to be wanted surely this does. The tendency among manufacturing chemists is to place perhaps too little value on everything except nitrogen and soluble phosphates. In a large number of instances such manure may be all-sufficient: in a still larger they are not, and the benefit arising from the use of what is even not regarded as necessary at all should not be disregarded. "The proof o' the puddin' is the precein' o't," as the Scotch say; and while it is well to make investigation in the laboratory we want more in the field and in the garden. Much has been done in the former, little in the latter.—SINGLE-HANDED.

YOUR correspondent "B." remarks, in reference to chloride and sulphate of potash, "We are greatly in the dark in all these matters"—an assertion which I should be the last to dispute; but there are certain points to which he alludes as being open to argument which I should have imagined not to admit of doubt, and it is as well to clear away everything which obscures the light. For instance, there can be no reasonable question that more has to be paid for potash sulphate than for potash chloride. A reference to the monthly circulars published by manure dealers will prove this. The sulphate costs half as much again at least as the chloride, and does not contain as high a per-centage of potash. The nitrate is still more expensive on account of the nitrogen it contains, and can scarcely be fairly brought into the comparison.

Again, I do not think that the lesser "solubility" of the sulphate has ever been urged as a material objection to the use of that salt. Although the chloride is soluble in about three parts of water and the sulphate requires ten parts for solution, the latter must be held to be sufficiently soluble for the requirements of plant life under all ordinary circumstances. There has been very great discrepancy of opinion, undoubtedly, on the question which of these two forms of potash is the better for plant cultivation; but until recently I have seen no attempt to give any reason for the assumed superiority or inferiority of the chloride, and my mind refuses to accept that which has been mentioned in your columns. It has, I think, been reserved to Mr. Jamieson to suggest a probable reason for the undoubted failures of the chloride, which have now and again occurred. His reasoning is most con-

vincing, and I commend to all interested in this question the report just published by him on the "Proceedings of the Sussex Association for the Improvement of Agriculture," for the year 1881. I must not ask you to give at length the experimental results on which his arguments are based, but I will ask you to spare room for his conclusions, as many of your correspondents must have had experiences tending to prove or disprove his theory. His conclusions are as follows:—"In a soil with 10 per cent. or more organic matter potassic chloride may be safely employed (but it may be as well to employ it one or two weeks before sowing). If the proportion of organic matter is less it must be accompanied by a salt capable of neutralising the chlorine which will be liberated. Failing security to do this another form of potash should be employed." And I may add that Mr. Jamieson mentions nitrate of soda as a salt which will give the necessary security. If Mr. Jamieson's views are well founded failures will manifestly have been less likely to have occurred in gardens than in the field.—INQUIRER.

ROYAL HORTICULTURAL SOCIETY'S GREAT SHOW.

MAY 23RD, 24TH, AND 25TH.

FAVoured by most agreeable weather the annual Show of the Royal Horticultural Society commenced at South Kensington on Tuesday last with highly satisfactory prospects, and judging by the attendance on that day the Society's friends and officials have good reason to expect financial results of an encouraging character. The marquee and the long approach were filled with plants, flowers, fruit, and vegetables, while an extensive portion of the lawn outside was occupied with the numerous and important contributions to the exhibition of horticultural implements, which appeared to attract an equal if not greater share of attention than the floricultural portion of the display. In the large tent, though there was a perceptible thinness in some parts, and rather less keen competition in several classes than on some former occasions, a charming effect was produced by a judicious arrangement of the exhibits; and in this effect the gigantic Roses from Messrs. Paul & Sons, Cheshunt, and the smaller but not less handsome specimens from Mr. C. Turner of Slough, constituted a most important feature, forming two grand groups at opposite ends of the tent. These, aided by Clematises, Azaleas, Rhododendrons, and stove and greenhouse plants, afforded abundance of colour, which was softened by the fine-foliage plants, though the latter were not quite so numerous as might have been desired, while a charming mixed group arranged by Messrs. Cutbush elicited, as it deserved, general admiration.

The approach tent was gay with Pelargoniums, Orchids, and hardy flowers, the latter forming a very beautiful feature in the Exhibition, Messrs. Cannell, Osborn & Son, Ware, Barr & Sugden, and Hooper and Co. having large and diversified collections, the Pyrethrums, Pæonies, and Ixias being particularly bright and abundant. The Pelargoniums, too, were in excellent condition, Messrs. Little's and C. Turner's plants being profusely flowered and evenly trained. The Orchids also were well represented, Mr. Child's winning collection in the open class attracting great admiration, his specimen of *Aerides Fieldingi floribunda* with six large panicles of flowers being one of the finest specimens of the kind ever shown. Fruit and vegetables were represented by exhibits of very satisfactory quality, the black Grapes, Strawberries, and Peaches amongst the former and the collections in the latter deserving much praise.

PLANTS.

Stove and Greenhouse Plants.—Large specimen plants in these classes were numerous shown, several collections having already figured prominently at previous exhibitions this year. In the open class for twelve specimens Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, took the lead with some of his grand examples, which have been repeatedly noticed in recent reports. Messrs. Peed & Son, Lower Streatham, took the second position with similar plants to those staged at the Crystal Palace Show last week; they were remarkably fresh and bright, *Statice profusa* being very well flowered. Messrs. Jackson & Son, Kingston, were third. In the nurserymen's class for eight specimens Messrs. Jackson & Son gained the premier award with plants of moderate size but neatly trained and well flowered, *Pimelea mirabilis*, *Erica ventricosa coccinea minor*, and *Dracophyllum gracile* being especially good. Messrs. Peed and Son followed closely with neat specimens, and Mr. H. James, Lower Norwood, was third. In the corresponding amateurs' class Mr. Tudgey was again successful in securing the leading position, all his plants being in admirable condition, especially *Erica Cavendishiana* and *E. ventricosa magnifica*. Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, was placed second, and Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, was third with smaller but good plants.

Azaleas.—In the amateurs' class for nine plants Mr. Child took the



Fig. 86.—*NEPENTHES VEITCHII*. Two-thirds natural size. (See page 422.)

lead with large and fairly flowered specimens. Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, Regent's Park, was second, also with large plants, but sparsely flowered. In the open class for fifteen Azaleas Mr. C. Turner was the chief competitor, being placed first with small but profusely flowered plants. Messrs. Peed & Son were second with small plants. Mr. Turner also took the lead with eight plants in the nurserymen's class, not formally trained but admirably flowered specimens. Messrs. Jackson & Son were second, and Messrs. Peed & Son followed, both with fairly good but not remarkable plants.

Pelargoniums.—The Show and Fancy varieties were well represented, most of the plants being flowered profusely. Mr. Wiggins was adjudged the chief position for large plants bearing fine richly coloured flowers; Snowflake, Prince Leopold, Isabella, Jeannette, and May Hoyle were the best. Mr. C. Turner was a very close second with fine plants of Kingston Beauty, Maid of Honour, and Patroness. For Fancies Mr. Wiggins was again first with compact beautiful specimens, Princess Teck, Duchess of Edinburgh, Roi des Fantaisies, and Ellen Beck being the most noticeable. Mr. C. Turner was a close second, Roi des Fantaisies, Fanny Gair, and The Shah being the most noteworthy varieties.

Roses.—A grand bank of these was arranged by Messrs. Paul and Son, Cheshunt, at the eastern end of the marquee, for which the chief awards were worthily granted in the classes for twenty plants and nine. They were scarcely less fresh and beautiful than they were at the recent Regent's Park Show, the blooms being very numerous. This was the only collection in the large class, Mr. C. Turner being second with nine plants of moderate size, but superbly bloomed. In the amateurs' class for six Roses Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Warren, Kingston-on-Thames, was first with very fresh healthy specimens, and Mr. Wiggins, gardener to H. Little, Esq., Uxbridge, was second with rather poor plants.

Tuberous Begonias.—Mr. H. Coppin, Shirley, Croydon, had the only collection of Begonias, healthy, well-flowered plants, of good varieties. Some of the best were Duke of Albany, rose-scarlet, large; Rêve d'Or, yellow; Mr. Hodgson, scarlet, large, fine shape; Little Willie, rose, fine and free; and Mrs. H. Coppin, yellow, large.

Heaths.—Messrs. Jackson & Son won the leading prize in the class for eight Heaths with neat healthy little plants, *E. ventricosa coccinea* minor and *E. Massoni* major being especially fine. Mr. Tudgey was second with good plants, and Messrs. Peed & Son were third with small but healthy well-flowered plants.

Orchids.—These formed a very pretty display in the approach to the marquee, but they would have made a much more attractive group on one of the banks in the large tent. In the open class Mr. Child was adjudged the principal prize for well-flowered specimens of *Aerides Fieldingi floribunda* with six panicles, *Saccolabium retusum*, *Oncidium amphitatum majus*, and *Cypripedium Stenoi majus* with nine flowers, and others also very beautiful. Mr. J. Douglas was second with a grand example of *Dendrobium nobile* finely flowered, *Cypripedium villosum* and *Dendrobium Wardianum* being especially noteworthy. In the amateurs' class for ten plants Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, gained the chief award for very good specimens of *Cypripedium barbatum*, *Oncidium crispum grandiflorum*, and *Oncidium concolor*. In the corresponding nurserymen's class Mr. H. James took the lead with satisfactory specimens; *Oncidium Marshallianum*, *Cypripedium barbatum*, and *Cattleya Mossiae* being in grand form. Messrs. T. Jackson & Son, Kingston, were second with a collection very close in merit to the first.

New Plants.—Mr. Bull, Chelsea, was awarded chief honours for the only collection of twelve new plants not in commerce, comprising the following:—*Spiræa Aruncus astilboides*, with fine feathery panicles of white flowers; *Dieffenbachia regina variegatus*, yellow and green; *Dracaena australis variegata*, narrow green and yellow-striped leaves; *Wallichia nana*, a distinct Palm, with pinnate leaves and broad pinnae somewhat like *Martinezia*; *Laurus Camphora variegata*, leaves white and green; *Dieffenbachia rex*, leaves large, spotted and blotched with white on a green ground; *Sarracenia erythropis*, tall pitchers, yellowish green streaked with red; *Selaginella involvens variegata*, one of the tufted forms, with white and dark green branches; *Anthurium digitatum*, leaves light green, a foot in diameter, irregularly cut at the margin; *Anthurium nitheroyense*, broadly heart-shaped, bright green leaves; *Ilicium religiosum variegatum*, white and green variegation; and *Dracaena aureolus*, a pretty form, with narrow green leaves streaked with yellow.

Fine-foliage Plants.—Mr. Rann gained the chief position with enormous specimens of *Cycas revoluta*, *Croton interruptus*, and *Areca sapida* amongst others of nearly equal merit. Mr. Tudgey was a close second with *Croton Mortii* finely coloured, *Latania borbonica* very large, *Geonoma gracilis* large and healthy, and many others also satisfactory.

Groups.—For a group of miscellaneous plants Messrs. Cutbush and Sons, Highgate, were awarded premier honours for an extremely pretty arrangement. Large specimens of *Cordylines* were surrounded by *Hydrangeas*, *Dracophyllums*, and bands of *Boronia elatior*, *Pimeleas*, and *Ericas*, with triangular panels of Ferns. Mr. Aldous was second with a bright and tasteful arrangement, but not so novel in design as the first, *Spiræas*, *Fuchsias*, and *Azaleas* largely predominating, with a suitable proportion of fine-foliage plants. Messrs. Peed & Son were the only exhibitors in the class for a group of a

hundred plants, and they were awarded the second prize for healthy little plants of Heaths, Azaleas, Crotons, Dracenas, &c.

Hollies.—Messrs. Cutbush & Sons, Highgate, were the chief exhibitors of Hollies, and gained the premier award with fine specimens of *medio-pictus*, *angustifolia*, *argentea marginata*, *aurea regina*, *Hodginsi*, *Walerianum*, *Scottica*, and others.

Ivies.—Mr. C. Turner gained the chief award with a pretty and interesting collection of twelve Ivies, comprising the following varieties—*heterophylla marmorata nana*, *angularia crenata baccifera nigra*, *aurea arborea contracta*, *lobata major*, *dentata*, *rhomboidea obovata*, *pedata*, *marginata grandis*, and *lucida poetica*. Messrs. H. Lane & Son, Great Berkhamstead, followed very closely with large vigorous specimens, also including some excellent varieties.

Hardy Plants.—Two attractive collections of these were staged in competition, Mr. J. Douglas securing the first position with a number of choice plants, *Saxifraga rotundifolia*, *Centaurea montana alba*, *Pyrethrums*, *Aquilegias*, *Primulas*, and others being very fine; *Armeria cephalotes* was also noteworthy. Messrs. Hooper & Co. followed with well-grown plants, among which the *Pyrethrums* were very noteworthy.

Pansies.—For sixty blooms of Fancy Pansies Messrs. James Cocker and Son, Aberdeen, secured the chief prize with an extremely fine collection, shown in green boxes without paper collars. Mr. W. Meddick, Bath, was a close second with large, freely coloured, and diversified flowers. The prizetakers for collections of hardy flowers were Messrs. Barr & Sugden and Hooper & Co., who had very large and beautiful assortments.

Ferns.—In the nurserymen's class for six Ferns Mr. H. James was first, having healthy specimens of *Platycerium alcicorne*, *Davallia Mooreana*, *Lomaria gibba*, *Blechnum brasiliense*, and *Adiantum trapeziforme*. Mr. J. Aldous was placed second with small plants fairly healthy. In the corresponding amateurs' class Mr. Child was an excellent first with vigorous specimens, *Davallia Mooreana* being remarkably good. Mr. Rann was second with larger and scarcely less vigorous plants; and Mr. Douglas, gardener to F. Whitbourn, Esq., Ilford, was third.

Miscellaneous.—A very important and beautiful portion of the Show was that formed by the miscellaneous groups and collections of plants from nurserymen, and in the large tent these were particularly prominent. All the plants staged were in very good condition, many were extremely well flowered, and the arrangement in most cases was highly satisfactory. A fine group of Roses in pots was contributed by Mr. C. Turner, the plants being staged upon the mound at the western end of the marquee on each side of his nine Roses in competition. The plants were in 10 or 12-inch pots, and were all extremely well flowered, *Marie Baumann*, *Edward Morren*, *Egeria*, *Avocat Duvivier*, and *Souvenir d'un Ami* being the best. A silver-gilt Flora medal was awarded. A choice collection of Azaleas was also staged, including a number of beautiful varieties. Mr. Charles Noble, Bagshot, was awarded a silver Flora medal for a pretty but small group of *Rhododendrons* and *Clematises*, the latter including such noteworthy varieties as *Proteus*, *Countess Gleichen*, *Aurora*, *Leigh*, and *The Czar*. A rosy crimson *Rhododendron* named *Proserpine* was very conspicuous in the group. Messrs. H. Lane & Son staged a fine bank of *Rhododendrons*, most of the plants being of moderate size but admirably flowered, and representing some beautiful varieties. A silver-gilt Flora medal was awarded. Messrs. J. Laing & Co., Forest Hill, had a pretty group of miscellaneous plants, *Ericas*, *Begonias*, *Crotons*, *Dracenas*, *Caladiums*, and *Pimeleas* constituting the chief features. Mr. Aldous was awarded a silver-gilt Flora medal for a circular group near the entrance to the large marquee, arranged in a similar style to those he has shown on several previous occasions, mainly consisting of white flowers, such as *Spiræas*, *Pelargoniums*, *Rhodanthes*, *Stocks*, *Crassulas*, and *Liliums*, with Ferns and Palms.

Mr. H. W. Ward sent a collection of vegetables and fruits, comprising Lapstone Potatoes and Tender and True Cucumber, fine. Messrs. J. Carter & Co. were awarded a silver Banksian medal for a most extensive and beautiful collection of hardy plants. Messrs. Osborne & Sons obtained a similar award for a large group of hardy and alpine plants. Messrs. Barr & Sugden had a large group of *Pyrethrums*, *Sedums*, *Poppies*, and miscellaneous hardy plants, forming a fine display, for which a silver Flora medal was awarded.

Mr. T. S. Ware of Tottenham had a pretty collection of *Pyrethrums*, cut blooms, and plants. The single varieties, all seedlings, were very rich in colour. Mr. Anthony Waterer had stands of Azaleas and *Rhododendron* flowers. Messrs. Veitch & Sons, Chelsea, had a beautiful collection of *Ixias*, *Babianas*, and *Tritonias*, which were greatly admired. Mr. W. Meddick, Bath, was awarded a bronze medal for collections of Pansies and Tulips, the former very fine.

Messrs. H. Cannell & Sons, Swanley, were awarded a silver Banksian medal for a most beautiful collection of Pansies and *Pelargoniums* arranged with Fern fronds and plants of *Nertera depressa*. The Pansies were particularly fine, *Souvenir*, *Pilrig Park*, *Magpie*, and *Cloth of Gold* being especially good. Messrs. Kelway & Son, Langport, were awarded a silver Banksian medal for a large and handsome collection of *Pyrethrums* and *Pæonies*, the single and double varieties of the former being about equally numerous. Mr. C. Turner had a few choice *Pelargoniums*, the semi-double white *Madeleine* being in remarkably fine condition. Mr. B. S. Williams, Upper Holloway, had a large group of choice stove and greenhouse plants, including Palms, Ferns, Crotons, &c., for which a silver-gilt Flora medal was awarded.

Messrs. J. Veitch & Sons, Chelsea, had a collection of fifty Cabbages, some very fine. Messrs. J. Hamlin & Co., Westbury Road, Wood Green, had some good samples of Mushroom spawn. From the Society's Gardens a very handsome group of plants was contributed, which was arranged near the entrance to the large tent. *Chrysanthemum frutescens* Etoile d'Or, *Saxifraga nepalensis*, *Gloxinias*, Ferns, Palms, and Azaleas were the chief features, and being tastefully combined they produced a most beautiful effect. A number of well-flowered Show Pelargoniums were also staged, with a large collection of Cape species and varieties.

FRUIT.

Though this was not largely represented, fairly good examples were staged in the leading classes.

Pines.—Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, Bucks, was the only exhibitor of two Pine Apples; one, Charlotte Rothschild, very fine, of good size and shape, and the other a small Queen. Mr. W. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham, was first with one Pine Apple, a good Charlotte Rothschild. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, and Mr. J. Maher, gardener to C. Allhusen, Esq., Stoke Court, Slough, followed, each with a Smooth Cayenne of moderate size.

Grapes.—Black Grapes were well shown for the season; Mr. J. Loudon, gardener to F. Barnes, Esq., The Quinta, Chirk, taking the first prize for three bunches of Black Hamburgs with large even bunches and fairly coloured; Mr. Johnston, gardener to the Marchioness of Camden, Bayham Abbey, Lamberhurst, and Mr. G. Aslett, Warren Wood, Hatfield, being second and third respectively with smaller bunches. There were five collections staged. In the class for any other black variety Mr. G. Holliday, gardener to J. Norris, Esq., Castle Hill, Bletchingley, and Mr. Loudon were the prizetakers. The white Grapes were generally green, and not of remarkable quality.

Peaches.—For six Peaches Mr. H. Clark, Blenheim Gardens, Woodstock, secured the chief prize with large and well-coloured fruits of Grosse Mignonne. Mr. J. Kenny, The Gardens, Worth Park, Crawley, followed with the same variety, scarcely less fine, Mr. Miles being third with Stirling Castle. There were seven competitors. Only three collections of Nectarines were staged. Mr. Holliday, Mr. Nash, gardener to Dr. Fuller, New Shoreham, Sussex, and Mr. J. Maher, being the prizetakers in that order with Lord Napier, Violette Hâtive, and Hunt's Tawny.

Cherries were only shown by Mr. Miles, who was placed first in each class for two dishes and one respectively. Black Circassian was very fine, Governor Wood being also good.

Strawberries.—For three dishes of Strawberries Mr. G. Norman, The Gardens, Hatfield House, Herts, gained the premier prize with extremely handsome fruits of Sir Joseph Paxton, President, and Sir Charles Napier. For one dish Mr. Norman won the leading award with large fruits of President; Mr. Mortimer, gardener to Major Storer, Purley Park, Reading, being second with fine examples of President extremely well coloured. Mr. Worthing, gardener to A. Moss, Esq., Chadwell Heath, Essex, being third.

Melons.—Sixteen fruits were staged in this class, Mr. Miles being first with Hero of Lockinge, beautifully netted and well ripened. Mr. Howe, The Gardens, Benham Park, was second with William I., the new variety certificated at Reading last autumn; Mr. J. Austen, gardener to Sir G. Smythe, Bart., Ashton Court, Bristol, being third with Carters' Blenheim Orange. Tomatoes were well shown by Mr. McIndoe, gardener to Sir J. Pease, Bart., M.P., Hutton Hall, Guisborough, Yorkshire; Mr. J. Douglas, and Mr. Miles. The first and third with Stamfordian, very fine; and the second with Fillbasket, even and good. There were eight exhibitors.

Messrs. J. Carter & Co.'s prizes for Blenheim Orange Melons brought nine competitors, Mr. J. Austen being first with a fine fruit, deep flesh, and well ripened. Mr. G. Williams, gardener to C. Liddell, Esq., Peasmarsh Place, Sussex; Mr. J. May, gardener to Capt. Le Blanc, Northam House, Barnet; Mr. G. Goldsmith, The Gardens, Hollenden, Tunbridge; and Mr. Taylor, gardener to James McIntosh, Esq., Oatlands Park, Weybridge, taking the remaining prizes with good fruits.

Messrs. Sutton & Sons, Reading, offered prizes for four dishes of Peas, to include two of their varieties. There were two competitors, but only one prize was awarded—namely, the first to Mr. W. Ward, gardener to the Right Hon. Earl of Radnor, Langford Castle, who had Suttons' Emerald Gem, Early Green, Ringleader, Day's Early Sunrise, and William I., all very good.

Messrs. Daniels Bros.' chief prize for a brace of Daniels' Defiance Cucumbers was won by Mr. Chettleborough, gardener to Colonel Rous, Worstead House, Norwich, who staged two neat fruits.

The prizes offered by Sir Henry Thompson for the best three bundles of Asparagus brought three competitors, Mr. Harwood of Colchester securing the first prize with three fine bundles of about a hundred heads, each well blanched; Messrs. W. J. Lobjoit & Son, Putney, were second with bundles of about the same size; Mr. G. R. Simpson, Colchester, being awarded an extra second prize. Mr. W. Robinson offered prizes for eighty heads; Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Norwich; Mr. J. Stewart, gardener to H. J. Barratt, Esq., Langford Park, Essex; Mr. J. Austen, and Mr. Campbell, gardener to J. Higson, Esq., Oakmere Hall, Northwich, taking the prizes

in that order. For twenty-five heads Messrs. Allan and Williams were the successful exhibitors amongst five.

Vegetables.—Five clean and good collections were staged. The principal prize was secured by Mr. Miles for excellent examples of Queen Onions, Stamfordian Tomatoes, Laxton's Unique Peas, Veitch's Early Forcing Cauliflower, Lady Paget Potatoes, James's Intermediate Carrots, Asparagus, and Artichokes. Mr. J. Austen was a good second with excellent produce, Mr. Ward being third.

IMPLEMENTS.

No horticultural exhibition can be considered complete at which the various appliances necessary for the successful management of gardens are not represented. The Council of the Society recognising this offered special inducements to inventors and manufacturers to exhibit their wares. The result was most satisfactory, and it is certain that no part of the Exhibition more fully exemplified the importance and magnitude of the industry of horticulture than the one under notice. Glass structures of various sizes and kinds, boilers of diverse shapes, ironwork of elaborate design, pottery ware useful and ornamental, lawn mowers in great variety, tools of all sorts, cutlery, instruments, tents and marquees, engines and syringes, seats, chairs, hammocks, summer houses, and even gardeners' cottages, constituted such a display as is rarely seen in the gardens. Very briefly we will refer to the principal exhibits.

Heating Appliances.—Class 1 was thus expressed—"Modes of heating a small conservatory attached to a dwelling." Seven competitors entered, the silver medal being awarded to Messrs. Messenger of Loughborough, and the bronze to Mr. J. Keith of Edinburgh, for "modes" at once simple and excellent; and, it must be said, almost or quite equally so were those of Messrs. Warhurst, Deards, and Kinnell. It is not necessary to enter into the details of the several systems, as these can be found in the catalogues of the respective firms. Class 2 was for "boilers heating 500 feet of 4-inch piping," the competitors being also seven; Messrs. Green & Son, although exhibitors, not entering the lists. The silver medal in this class was adjudged to Mr. Warhurst, 33, Highgate Road, London, N.W., for a low and rather flat terminal saddle boiler with side flues, undoubtedly a simple and serviceable apparatus. Bronze medals were granted to Messrs. Foster & Pearson, Beeston, Notts; Jenkins & Co., Masborough Works, Rotherham; and Kinnell & Co., 31, Bankside, Southwark, London—all exhibiting articles of about equal merit, and this beyond question considerable. For "hot-water piping and modes of fixing, valves, &c.," Messrs. Messenger received the chief award—a silver medal; Messrs. Appleby & Co., Renishaw Ironworks, Chesterfield, the bronze medal; and Messrs. Foster & Pearson a special certificate for a throttle valve of manifest utility.

Glass Structures.—The number of these and their various forms and sizes had quite an imposing appearance. The silver medal for "a house not exceeding 50 feet in length" was awarded to Messrs. Foster & Pearson—neatness and good workmanship, lightness with strength and efficient ventilation, were apparent here; and scarcely less so in the structure of Messrs. Boulton & Paul of Norwich, who secured the large medal. Messrs. Messenger and Parham exhibited well in this class, and it was difficult to find fault with their products. The silver medal for "moveable pits and frames" was granted to Messrs. Foster & Pearson, and bronze medals to Messrs. Messenger and Boulton & Paul, all of whom well merited the awards. The frames of these firms are now so well known as to render description superfluous. Five competitors entered the lists in the class for showing "Improvements in Glazing, Ventilating, &c.," but only one medal was awarded—namely, a bronze to Mr. Warhurst for a system in which lead was the medium employed for securing the glass, and securing also strength, lightness, durability; no drip, nor fear of the metal succumbing to the effects of the atmosphere in which sulphurous vapours may abound. Mr. Warhurst is evidently a "thinking man," and the Judges were thinking men too; hence the simple, even if not altogether new, system found favour with them, and not many unprejudiced observers will dispute the soundness of their judgment.

Decorations for Conservatories.—These included ornamental flooring, vases, flower stands, &c. The silver medal was adjudged to Messrs. Rosher & Co., King's Road, Chelsea, for a large and very fine collection of terra cotta vases in various forms and sizes, and undoubtedly worthy of the position they secured. Messrs. Kessell & Son, 11, Southwark Street, London, S.E., were granted the bronze medal for self-acting fountains, aquaria, and flower stands combined—beautiful ornaments for rooms and corridors, and evidently popular with the visitors. Under this head, though exhibited in the miscellaneous class, a special silver medal was accorded to the Coalbrook Dale Iron Company, Shropshire (agent, Mr. Caven Fox), for a splendid assortment of castings—chairs, vases, a pavilion, &c., remarkable for chasteness in design and excellence in execution. A similar honour was also unanimously granted to Messrs. Lipscombe & Co., 44, Victoria Street, London, E.C. Hitherto famed for filters, the firm will henceforth be known for garden statuary, vases, urns, pedestals, and ornaments in terra cotta, in almost all colours, sizes, and forms, highly finished, admirable, and chaste. This contribution was of great magnitude, and of its kind such as has not been previously seen in the gardens.

Lawn Mowers.—Great interest was manifested in the trials of these. Every machine appeared to possess some peculiar merit, and not one failed to do its work well. Messrs. Green did not compete. The

Judges were long in arriving at a decision in the class. Eventually silver medals were granted to Messrs. Crowley & Co., Sheffield, for Edwards' patent mower; and Messrs. Deane & Co., 46, King William Street, E.C., for the Excelsior; bronze medals falling to Messrs. J. G. Rollins & Co., Old Swan Wharf, London Bridge, for the Archimedean; and to Messrs. T. M. McKenzie & Sons, 16, Holborn Viaduct, for the President. The Sheffield mower is accustomed to medals, and is a strong, rigid, smooth-working, and apparently long-enduring implement. Rollers can be fixed either at the front of the knives or behind them, or in both positions; or it can be used without any rollers at all; the cutter is reversible, there is no chain, little noise, and the entire mechanism is simple and easily understood. The other machines in competition were apparently still more simple, decidedly lighter, and their easy movement and the good quality of their work causes them to find favour with many persons. The Excelsior appeared to gain a point over the others, because each knife (four) is complete in itself, and removable in case of accident. The others did their work equally well; indeed it is not certain if the President was not almost a point ahead in this respect, but as at present constructed the noise it makes is too pronounced to be agreeable. The trials were of a very exhaustive character. In the class for horse machines the only prize awarded, a silver medal, was unanimously granted to Messrs. Crowley & Co. for in every respect a most excellent implement, every part working with the utmost smoothness, yet nothing being gained at the sacrifice of strength. This machine appeared to find favour with everybody.

Garden Pottery.—The silver medal was adjudged without hesitation to Mr. Matthews of the Royal Potteries, Weston-super-Mare, for such a great assortment of useful articles of almost all sizes in different shapes, and for various plants and purposes, that we cannot even enumerate them, and it must suffice to say that all were of admirable quality and highly finished. A special certificate was also given for a new groove-rimmed propagating pot, the bellglass resting on the rim and not on the soil. Messrs. Stiff & Sons, Lambeth, were accorded the bronze medal for an excellent and extensive assortment of terra cotta balustrades and edging tiles.

Garden Seats, Chairs, and Wirework.—Messrs. J. & J. Thomas and Co., 285 and 362, Edgware Road, London, W., secured the silver medal for a contribution of great merit and variety, in which chairs, &c., of almost every conceivable form were represented; the bronze medal going to Mr. Warhurst for a smaller collection containing neat well-finished and serviceable articles. For wirework Messrs. Thomas had a wonderful display, and the different articles elicited general admiration for their chaste designs and good finish. It is scarcely possible to conceive anything in wirework adapted for use in gardens that was not represented in this great and indeed splendid collection. The silver medal was unanimously granted, the bronze going to Mr. Holliday, Beaufort Street, Chelsea, for a less imposing yet very useful series of articles. It should be added also that a special certificate was granted to Messrs. Thomas for a sectional wirework stand suitable for rooms and conservatories.

Garden Engines, Syringes, &c.—The finest and most complete collection was arranged by Messrs. J. Warner & Sons, 27, Jewin Crescent, E.C. It were impossible to enumerate the different articles, which were very numerous, yet every one good, and the silver medal was deservedly awarded. Bronze medals were granted to Messrs. Arnold & Sons, 35, West Smithfield, for their excellent simplex garden engine, and to Messrs. Appleby & Co. for chain and force pumps, of which they showed a considerable variety.

In other classes we observed that the silver medal for tents and marquees was granted to Mr. B. Edgington, and bronze medals to Messrs. Unite and Thomas, a great variety of excellent articles being arranged by all the exhibitors. A certificate was also granted to Mr. Edgington for the new Willesden waterproof canvas tent, and a similar award to Mr. Unite for shading material and appliances. Mr. Parham, Northgate Works, Bath, secured the silver medal for lawn tennis apparatus. A silver medal was adjudged to Messrs. Nettlefold & Sons, 54, High Holborn, London, for an admirable assortment of garden tools, and a bronze medal for a small case of superior cutlery. A certificate was also granted to this firm for their patent shield syringe, by which the annoyance often caused by back water appears to be effectually obviated. A bronze medal was granted for the Pall Mall edge-cutter. Mr. Wells obtained a certificate for his useful spray-distributor, and Messrs. Davis & Co. a silver medal for meteorological instruments. It will be seen by the above enumeration of awards that this department formed an important, and was indeed a commanding, feature of the Exhibition.

COMMITTEE MEETINGS.

THE exhibits submitted to the Fruit and Floral Committees were not numerous, but several noteworthy plants were shown and certificated.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Messrs. Daniels Brothers, Norwich, sent thirty or forty fruits of their Defiance Cucumber, all even and bearing good bloom. Mr. D. Goldsmith, The Gardens, Polesden Lacey, had some fair samples of Royal Ascot Grape. Mr. Taylor, gardener to J. McIntosh, Esq., Duneevan, Weybridge, showed a fruit of Blenheim Orange Melon of good size and depth of flesh. Mr. C. Howe, The Gardens, Benham Park, was awarded a first-class certificate for a new Melon, a scarlet-fleshed variety, called William I.; it was of good flavour and neat appearance. Mr.

W. Elphinstone, The Gardens, Shipley Hall, Derby, was awarded a cultural commendation for some fine Brown Turkey Figs, and Mr. W. H. Ward had a similar recognition for a number of fine Citrons. Mr. Wells of Earlswood was accorded a vote of thanks for samples of Wells' Telegraph Cucumbers in good condition. Mr. Ross, gardener to C. Eyre, Esq., Welford Park, sent a collection of Apples very well kept.

FLORAL COMMITTEE.—W. B. Kellock, Esq., in the chair. The chief exhibits amongst the plants were those for which certificates were awarded, and the general collections were not abundant. Messrs. J. Veitch & Sons, Chelsea, and B. S. Williams of Upper Holloway, had collections of new plants, several of which were certificated and are noted below. Messrs. J. Laing & Co., Forest Hill, had some pretty varieties of Tuberous Begonias. Messrs. Heath & Son, Cheltenham, sent a collection of Pansies; and Robert Warner, Esq., Broomfield, Chelmsford, had several beautiful Orchids.

First-class certificates were awarded for the following plants:—*Odontoglossum Alexandra giganteum* (Warner).—An extremely fine variety with pure white flowers $5\frac{1}{2}$ inches in diameter, the sepals and petals broad, and the lip tinged with yellow.

Lavatera arborea variegata (Mr. T. Smith, Gloucester).—A beautifully variegated form of Lavatera, which was faithfully represented in our woodcut, June 9th, 1881, pages 466 and 467, vol. ii., new series.

Ivy Pelargonium Eurydice (Cannell).—A fine double rose-coloured variety, with large flowers.

Spergula pilifera aurea (Dean).—A golden form of Sandwort, which is said to be very useful for bedding-out, keeping its colour well.

Rose Reine Marie Henriette (R. T. Veitch).—This is also known as the Red Gloire de Dijon, having very fragrant flowers of good form and of a fine rosy tint. It was certificated as a climbing Rose.

Selaginella platyphylla (Veitch).—Undoubtedly one of the most distinct of the genus, having broad dark green flattened fronds, the leaflets being broad and closely set, giving the fronds the appearance of having been pressed. It is suggestive in habit of *S. hamatodes*.

Adiantum dolabriforme (Williams).—A pretty dwarf Fern with pinnate slender drooping fronds 8 to 10 inches long, the pinnæ being broad, bright green, and semicircular in form. It will probably become a favourite basket Fern.

Begonia Ball of Fire (Laing).—One of the tuberous section, of excellent habit, and bearing rich scarlet flowers of great size and good form, the petals being very broad and rounded.

Veronica Hulkana (Douglas).—A handsome species of Veronica, admirably adapted for greenhouse or conservatory culture, with abundant pale lilac flowers, and somewhat trailing habit.

Oncidium lamelligerum (Coningsby).—A peculiar Orchid, with very large dull yellow flowers produced upon a long spike, which is very slowly developed.

Masdevallia Veitchi grandiflora (Coningsby).—A beautiful variety of this well-known Masdevallia, having unusually large and richly coloured flowers.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Maple sp.—Dr. Masters exhibited a species of Maple with crimson bracts, five-lobed leaves, and a corymbose inflorescence. It was at first thought to be *Acer velutinum*, Boiss., from the Caucasus, but it was considered to be clearly distinct from it. It was referred to Kew to be identified, and will be figured.

Foliage Injured by Salt in the Late Gale.—Dr. Church described experiments he had made at Cirencester during the last fifteen years to ascertain the amount of salt brought by autumnal gales, especially from S.W. He found from 5 to 7 grs. per gallon, while the ordinary amount was only 0.5 grs. The average winter amount was but little more than that of summer. He noticed that in Oakley Park one side of the trees was severely injured, and that if no rain followed for a few days after the gale the salt sparkled on the trees, even at a distance of thirty-five miles from the British Channel. The salt abstracted the moisture from the cells and formed a condensed solution, so that the leaf became completely dried up and perished. Mr. McLachlan added that salt had been observed on windows at Lewisham, as at Croydon and elsewhere. Sir J. D. Hooker remarked that Dalton first noticed it at the beginning of this century. With regard to Beeches withstanding the gale better than Oaks, as mentioned at the last meeting, it was stated that they were unhurt at Kew and Valewood, Haslemere; but at Cirencester, in Dorsetshire, and Cornwall they suffered severely. Mr. Blackmore exhibited foliage of Pears, &c., from Teddington. Some were quite unhurt. Of other trees growing adjacent to them the leaves were severely cut. Vines and Peaches showed similar differences. He suggested that it could not be salt in this case. The opinion generally entertained was that such discrimination was due to the trees being relatively hardy and less hardy kinds.

Rhododendron triflorum.—Mr. Mangles exhibited sprays of this species from the Himalayas. It belongs to the scaly-leaved section; and he observed that members of this group will not hybridise with any species of *Rhododendron* without scales on the foliage.

Senecio spathulifolius (D.C.).—Mr. Lynch exhibited a fine specimen of this plant, lately found at Bangor, which Prof. Babington considers the same as *S. maritima* of Syme. He also, as well as Dr. Low, exhibited specimens of *Cineraria campestris*, a native of the chalk hills of Cambridgeshire and of Stonehenge, which is apparently a variety of the same plant (see "Journal of Botany," February, 1882).

Mr. Lynch also exhibited a specimen of *Allium Ostrowkianum* from Turkestan, with crimson flowers, and *Houstonia serpyllifolia*, with blue flowers, from North America.

Malformed Tulip.—Mr. Smith showed a Tulip received from Mr. Smee, having petals distributed down the peduncles—a not uncommon occurrence. Mr. Henslow remarked on the fact that when such a petal was half green and half coloured, the tendency of the latter was to check the growth and elongation of the peduncle. This causes the peduncle to bend over towards the side on which the petal is attached, and often so much so that it cracks on the opposite side, and may even decapitate itself.

Monstrous Rhododendron.—The Rev. G. Henslow showed a flower in which the corolla was doubled, the stamens partially petaloid, while the pistil had its ovary open, bearing stamens in the place of ovules. He showed a drawing of a similar case made in 1875, in which the style had become strap-shaped, partially coloured, and bore anther cells on the margins, the pollen of which was evidently abortive.

GENTIANELLAS.

WHAT are the conditions under which *Gentianella* (*Gentiana acaulis*) may be successfully grown in English gardens? Every one would wish to have plenty of it, and yet if we were to take at random a hundred good flower gardens from all parts of England there would not be twenty of them in which *Gentianella* flourished well and without special cultivation. The plant has its particular requirements and antipathies, probably depending upon atmospheric conditions as much as upon soil, so that everything we can do for it may end in failure; but we can at least observe the soils and situations in which it thrives best, and endeavour to imitate them. The position in which it increases faster and flowers better than any other place I have ever seen is a nursery garden in Darley Dale near Matlock. I have there seen hundreds of square yards of it covered with flowers, and growing in the natural soil of the garden without any artificial cultivation except digging and keeping clear of weeds. The geological formation is millstone grit or hard sandstone, the soil friable peaty loam, the ground flat, and the situation open, not more than 200 or 300 feet above the sea level. Another garden in which *Gentianella* does nearly as well is at Bowness, on the banks of Windermere. This garden, too, is flat and not much above the sea level. The soil is marly loam mixed up with bits of rock.

I have never seen the plant thriving in soils which either burn up or dry into a hard cake in summer; and though it may sometimes flower well in gravel walks it depends more upon the underground composition of the walk than upon the gravel surface; and I have no doubt that on clay soils where a few inches of broken stone are laid upon the clay, with an inch or two of gravel over them, some of the most important conditions are supplied. An open sunny situation, a cool but well-drained subsoil, and a rich and tolerably open soil on the surface, will generally ensure success; but I have lately taken to planting my *Gentianella* on slightly raised mounds, with plenty of broken brick or sandstone a few inches beneath the surface, and the plants seem to like this. Where *Gentianella* does not seem to like the natural soil of the garden it is worth while to have soil made for it. This is more easily done where the natural soil is stiff, provided that drainage is given, than where it is too light. Care must always be taken in making the soil of any part of a bed lighter or heavier than the rest. In the former case, if means are not used to drain it, it becomes a puddle: in the latter it becomes in dry weather a resort for all the worms, slugs, and other underground vermin in the bed.

If anyone who has hitherto failed with *Gentianella* wishes to try again, and to make a line of it along one of his borders, he will probably succeed by the following plan. The situation must be open and sunny, and the soil quite free from the roots of trees. A trench about 18 inches deep should be dug, and in this a foot of brick or stone, broken to the size usual in road-mending, should be put. The soil should be two-thirds of the best stiff loam that can be obtained and one-third leaf mould, or, still better, peat well broken up. With this the remaining 6 inches of the trench should be more than filled, and the soil worked and pressed amongst the stones (some of which may be raised to let it down) until they are within 3 inches of the surface. The mixture must be tightly and closely pressed together, and the roots of the *Gentianella* when planted must be firmly pressed into the soil. A little coarse grit or fine gravel scattered on the surface keeps the soil open and healthy, and is a great help to most plants of this kind. Frequent waterings in dry weather will do good, and the labour of them repaid in the next year's flowering. My garden is one of those in which formerly *Gentianella* failed entirely, but by careful cultivation I have overcome the difficulty, and at present have a very good display of this beautiful flower.

In some of the borders in my garden I have an edging of blue

earthenware tiles, the soil on the inside being 2 or 3 inches higher than the walk. *Gentianella* grows and flowers well just inside the tiles, spreading its roots against the rough surface. In other parts of the borders where I wish to have a clump of this flower I place two or three pieces of sandstone about the size of bricks so as to form an enclosure, and put a mound of made soil inside and over them in these places; if the situation is open the plant never fails. On the rockery it does better in the hollow pockets than on the slopes, and better on the lower than the upper parts, as it gets more moisture there, which is necessary for its welfare.—C. W. DOD.

GARDENERS' RAMBLES.

MESSRS. JAS. VEITCH & SONS' NURSERIES, CHELSEA.

IT is a great pleasure to a gardener like myself to occasionally have the privilege of visiting such a grand establishment as this; but unless he takes notes there is danger that in seeing so much that is new, interesting, and good, his memory will be overtaxed, and he will forget what was of most importance. I subjoin a few such made on a recent visit.

In a house containing a large number of trained plants, including all the best varieties of *Clematis* finely grown, the two most



Fig. 87.—*Nepenthes Lowii*. (See page 422.)

strikingly beautiful were Lord Nevill, deep blue, a very large flower with broad sepals, the edges of which have a somewhat fringed appearance; and Princess of Wales, similar to the above but lighter in colour. Amongst a fine lot of *Azalea indica* in bloom, Helen Carmichael, a fine large white occasionally flaked with carmine red, is very striking as one of the best varieties of recent introduction; also Roi Leopold alba promises to be a valuable variety on account of its vigorous and bushy habit and its smooth flowers. A fine sulphur yellow Tree Carnation, Andalusia, was very beautiful amongst a large number of other varieties. In the Orchid houses, especially noticeable were a number of plants of the beautiful *Cattleya citrina* flowering freely, also a fine plant of *Bletia hyacinthina*. In a house filled with *Caladiums* finely grown and coloured the most noticeable were *C. Laingi*, very brightly coloured, and *C. Aliebiades*, a variety with enormously large leaves and finely coloured. The *Camellias*, which have nearly completed their season's growth, appear to have lately received liberal supplies of guano water, and show the value of it in their large dark-coloured and stout foliage and generally vigorous growth.

One of the most remarkable features of the nursery is the collection of pot Vines from eyes, which occupy four or five large houses. The foreman in this department informed me that the number annually grown by the firm for sale is about two thousand, also that the eyes were inserted during the early part of January, but that no heat was given them till the second week in February. The most forward amongst them are now 5 to 6 feet in height, very strong, and furnished with fine, large, healthy foliage down to the pot. Much importance is attached to not forcing them too rapidly in the earlier stages of their growth.

MR. B. S. WILLIAMS' NURSERIES, UPPER HOLLOWAY.

In these celebrated nurseries the fine collections of Orchids stove and greenhouse plants, Palms, Ferns, &c., are all in excellent condition. In the Orchid houses the Cypripediums, of which there is a large and fine collection, are now flowering superbly. Especially noticeable were a fine lot of *C. Lawrencianum*, a very fine variety of the *barbatum* type, also *C. Lowi* and *C. caudatum*, of the latter of which there are some large specimens well flowered. Of Vandas there is one of the finest collections in the country, most of them being large and very vigorous specimens, many of which are now bearing large spikes of bloom. In the houses devoted to cool Orchids I especially noticed a fine large specimen of *Mesospinidium sanguineum* bearing upwards of twenty-five spikes of bloom, also a large number of smaller plants, all profusely bloomed. This appears to be a charming little Orchid for basket culture in the cool house. There is also a large number of *Odontoglossums* now in bloom, amongst which are some very fine varieties of *O. Alexandræ*. Suspended amongst the flower spikes of the *Odontoglossums* are a number of plants in bloom of the yellow-flowered *Oneidium eoncolor*, which are very striking and showy amongst the white and pink flowers of the *Odontoglossums*. In the Azalea houses I noticed a fine new hybrid variety named *Miss Beust*, which has the close compact habit of the *A. amœna* type, with large pure white flowers like the varieties of *A. indica*. In the Fern house is a fine batch of the beautiful *Adiantum Williamsii* and a magnificent specimen of the same fully 3 feet in diameter. *Davallia Tyermanii* is also here very beautiful, grown on blocks of wood about 2 feet high.

MESSRS. H. CANNELL & SONS' NURSERIES, SWANLEY.

One of the most enjoyable of my rambles was a visit to these nurseries, which are noted for the excellent strains of florists' flowers there cultivated. The chief object of my visit was to see the collection of the herbaceous *Calceolarias* which are now in very fine condition. A house 100 feet long by 12 feet in width is filled with flowering plants, the bulk of which are beautiful specimens about 15 inches in height, and with dense heads of bloom often 18 inches across; the individual flowers being generally large and finely marked and coloured, those with bright yellow and deep crimson and purple markings being especially fine and in large numbers in this collection. I understand that all the best are selected for the production of seed.

Another house of the same size as the above is filled with healthy vigorous plants of the fine *Primula Swanley Red*, now ripening a fine crop of seed. The sterling qualities of this variety of *Primula* have been well demonstrated at the various exhibitions during the past season. The other varieties of *Primula* named in Mr. Cannell's catalogue are to be met with in large numbers in other houses. Adjoining these is one filled with Zonal *Pelargoniums*, quite a blaze of colour, and most remarkable for the vigour of the plants, the size of the trusses, and the fine quality of the flowers. All the best varieties in cultivation are grown, twelve of the best there represented are *Attalea*, *W. B. Miller*, *Mrs. Strutt*, *Henry Jacoby*, *Lizzie Brooks*, *Constance*, *Lizard*, *Zerlina*, *Miss Hamilton*, *Sophia Birkin*, *David Thomson*, and *La France*. In another house a large batch of the beautiful semi-double-flowered Ivy-leaf *Pelargonium Madame Crousse* was flowering very profusely; this is a fine variety for baskets and balconies, and for conservatory decoration. *Cinerarias*, of which there has been a fine display and equally good, with the *Calceolarias*, are now nearly over and are ripening a fine crop of seed.

In the almost innumerable ranges of pits are fine collections of bedding plants. Dahlias, especially the single varieties which Mr. Cannell has done so much to popularise, are represented by very large stocks. Single and double *Pyrethrums*, too, which are now becoming so deservedly popular, are here grown in thousands and in great variety. These are essentially plants for the town garden, and cannot be too highly recommended. In the outdoor nursery hardy herbaceous and spring flowers are grown in large numbers, and all the best varieties in each class of *Chrysanthemums*, about five hundred varieties, are grown; and an admirable

system is adopted of keeping each variety in groups by themselves for keeping them true to name. Altogether the wonderful collections of plants to be found in these nurseries are both a surprise and delight to the visitor, and testify more eloquently than words can do to Mr. Cannell's energy and perseverance.

The new white-flowering *Heliotrope White Lady* is represented by a large batch of strong plants covered with fine trusses of fragrant flowers. Some new double *Petunias* lately received from France are producing exceedingly fine flowers, large, highly coloured, and beautifully fringed. The best amongst them are *Neptune*, *Ophelia*, *Virginal*, *L'Azure*, *Madame D. Marin*, *Mr. A. Solner*, *Comte De Montbron*, and *Concolore*. In another large house is the finest collection of *Begonias* with ornamental foliage I have ever yet met with, most of them recent introductions from France. The most striking and distinct amongst them are *Adrien Robinc*, *Berthe Proutieri*, *Mons. Edmund Derox*, *Madame L. Tisserand*, *Clementine Gillot*, *Jules Chrétien*, *Otto Forster*, *Talisman*, *Gaeton O'Gorman*, and *Julia Serot*. These are certain to become general favourites. Several houses are filled with dwarf yet vigorous plants of *Pelargoniums*, including all the best varieties in the different types of Show, French, Fancy, and Regal. That beautiful variety of the latter, *Madame Thibaut*, is flowering freely, and should be in every collection. A walk through these houses in a few weeks hence will be a treat to lovers of *Pelargoniums*.—W. K. W.

MESSRS. CARTERS, PERRY HILL.

There is always something worth note in the Perry Hill Nurseries of Messrs. Carter & Co. Latterly the Tulips have been gorgeous, but they are over, and the Primulas, which were lately splendid, are now ripening their seed—a fine crop, except as regards the blue novelty, *Holborn Gem*, which is unfortunately a shy seeder, and the packets of seed will be necessarily small. *Calceolarias* are now in flower—a great stock in great variety, the flowers richly spotted, smooth, and in brilliant colours. The fine variety, *Cloth of Gold*, that was certificated last year, commands attention, and it fortunately comes true from seed. Great attention is evidently bestowed on these flowers, and no inferior varieties are allowed to produce seed. It is the same with *Cinerarias*: only those that are good bear seeds, those below a particular standard of merit being placed together in a house far distant and used as cut flowers. *Petunias* are grown in thousands for producing seed; their numbers are quite extraordinary, and the plants most healthy. Balsams, too, are grown on a similarly large scale for the same purpose. In one of the houses *Clanthus Dampieri* is flowering, and cannot be surpassed in brilliancy of colour. The double white *Bouvardia*, *Alfred Neuner*, is in great force and great demand. To this the double pink form, *General Garfield*, will form a fitting companion, and everybody must grow them both.

The certificated new Coleuses, such as *Ada* and *Edith Sentance*, *Miss Simpson*, *Mrs. Steddall*, and some others, are being propagated largely, the demand for them being great, and no wonder, as the colours are so rich, and the plants so easily and quickly grown. In one of the stoves the new *Croton Beali* arrests attention by its free growth and bright colours—a mixture of orange, crimson, and green, the leaves arching gracefully and broader than those of *C. Queen Victoria*.

In frames are annuals of all kinds grown in pots. In the grounds alpine and herbaceous plants, beds of Lilies, trial Potatoes, Primroses, especially the fine double variety *Cloth of Gold*, Pansies in pots and planted out, a golden mass of the bright and fragrant *Wallflower Graham's Perfection*, and a Mushroom ridge *à la Barter* in fine bearing, are a few of the many things that attracted attention at this branch of the great Holborn firm a week ago. All appeared busy as bees, and the bees were busy too, as one of the finest swarms that ever issued was being hived by one of the foremen, who appeared to know what he was about in tending the industrious insects. They are useful in two ways in an establishment of this kind—yielding honey, and fertilising the flowers, thus contributing to better crops of seed.—J.

FLOWER SHOW IN PORTUGAL.

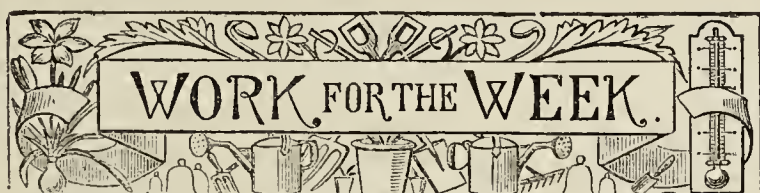
THE spring flower show of the Oporto Crystal Palace Company was held in the central nave on the 6th, 7th, and 8th inst.

Owing to the late unfavourable weather the show of Roses was somewhat inferior to that of previous years, but the other sections were good. The classes competed in were for Roses in pots or cut blooms, Azaleas, Rhododendrons, variegated-leaved *Pelargoniums*, Fancy and Show *Pelargoniums*, Tuberous *Begonias*, Agaves, Yuccas, *Bonaparteas*, *Phormiums*, *Echeverias*, Palms, Tree Ferns, Cycads, and variegated-leaved plants; there were also sections for the arrange-

ment of cut flowers on tables, in bouquets, basket, &c., and for artificial flowers.

Among the nurserymen, Mr. José Marques Loureiro, showed the finest collections, some of his Tree Ferns and Cycads being splendid specimens, and his Caladiums very beautiful. Count la Silva Monteiro, as usual took the first place among amateur exhibitors, but did not compete in any of the classes; he was, however, awarded the medal of honour as being the amateur exhibiting the most noteworthy collections. The exhibits of flowers arranged on tables and in baskets, bouquets, &c., being varied and showing great taste, attracted much attention, and were greatly admired. Only amateurs exhibited in this section and that for artificial flowers. The decoration of the Palace was confided to Mr. Jeronymo Monteiro da Costa, Manager of the Gardens, who earned deserved praise.

The awards were as follows:—To nurserymen, Mr. José Marques Loureiro, eight silver and one bronze medals; Viuva de Zepherino de Mattos, two bronze medals. To amateurs—Gold medals to Baroness Seixo and Miss Wright. Silver medals to A. Christino, A. S. Monteiro, Miss Smithes, G. D. Tait, Miss Moller, Miss Tait, Miss E. Murat, Mrs. Ursinus, and Miss Reid. Bronze medals to A. Christino, M. C. Arantes, Donna Maria M. Conceicao, J. F. S. Garcez, E. Biel, F. V. Corte Real, Mrs. Tait, Mrs. G. Reid, Mrs. Castro Monteiro, and Miss Vieira da Cruz.



KITCHEN GARDEN.

A SOWING of Cauliflower should be made between now and the 24th to raise plants for a supply of heads in autumn and early winter, Walcheren being suitable. Make successional sowings of Radishes and Spinach at intervals of about a fortnight between the rows of Peas. Small salads—i.e., Mustard and Cress, should be sown frequently according to the demand. Hoeing and earthing up Potatoes must be attended to as they advance in growth; and if the ground be heavy fork between the rows, especially where these spaces are to be occupied by Brussels Sprouts, which should be planted there as soon as they are fit for the purpose. Chicory seed, where the roots are employed for placing in Mushroom houses to afford blanched heads for salads, should now be sown in drills 15 inches apart, and the plants thinned to 9 to 12 inches. A successional sowing of Scarlet Runner Beans may be made if necessary, and another of French Beans. Make preparations for the most advanced portion of Celery plants, which should be planted out at once if they have been well hardened off. Ground cleared of Broccoli will be available for this purpose. Beds of rich fine soil should be prepared for the young seedlings from the March sowing for the main crop, planting them about 3 inches apart, shading and watering as necessary. Cutting Asparagus must not be practised with plants required for forcing; or if recourse must be had to cutting these now it must not be continued too long, or the plants will be too much weakened for early forcing next season.

In the forcing department continue to liberally supply water to Carrots in frames, and remove at the earliest period every alternate one so as to afford the next every advantage. Harden Tomatoes in cold frames by degrees preparatory to planting them outdoors. Keep the laterals of those in pots under glass closely pinched or removed, not stopping the lead until five or six trusses of fruit have formed, then stop one joint above the last truss, keeping closely stopped afterwards, and supply liquid manure copiously, earthing up the plants with lumpy loam as necessary. Prepare ridges for Vegetable Marrows and ridge Cucumbers, and plant these out under handglasses. Forward the growth of Chili and other Capsicums in pits. French Beans in pits should have plentiful supplies of water or liquid manure as needed, and be liberally ventilated upon all favourable occasions. As frames or pits become cleared of Potatoes they may be usefully occupied with Cucumbers and Melons.

FRUIT HOUSES.

Peaches and Nectarines.—In the earliest house the very early varieties will be followed by those desirable kinds, Hale's Early and A Bec, which, though several days later than Early Beatrice, are very much larger and finer in every respect, and these again will be

succeeded by Royal George, Grosse Mignonne, and Noblesse. The three most suitable Peaches for early forcing in succession are Alexander, Hale's Early (both of American origin), and Royal George. Of Nectarines, Lord Napier and Elruge are admirable and fitting for association with the Peaches last named. As soon as the fruit is removed from the trees syringe twice in the day, and well supply the border with moisture, and liquid manure occasionally will help the trees. In addition to this the bearing wood of the current season should be cut away unless it be part of the extensions, and any superfluous shoots removed, laterals as formed being closely pinched to one joint. It is important that the foliage be kept clean to the last, and fully exposed to light and air. The temperature should not exceed 60° to 65° by artificial means, which will be ample also for trees perfecting their fruit in the same structure.

Pines.—Attention to plants with the fruit advanced will be indispensable in maintaining a moderately high temperature and moist atmosphere, also in the ventilation. Watering must be attended to at least once a week in the case of plants in fermenting beds, and with the heat at the roots supplied by means of hot-water pipes a plentiful supply will be needed frequently, with liquid manure in a weak form—guano at the rate of 1 oz. to a gallon of water being suitable. Admit air at the top of the house when the temperature is at 80°, keeping it through the day at 80° to 90°, allowing a rise of 5° after closing the house at 85°, and if it be desired to enlarge the crowns allow a rise of 10° to 15° after closing. Artificial heat must be had recourse to, to prevent the temperature falling below 70° at night and 75° by day. Syringe the plants two or three times every week as circumstances require.

Figs.—In order to ripen the fruit satisfactorily it is necessary to keep it free from damp. The trees should also be kept in a rather warm atmosphere with a free circulation of air; to effect this it will be necessary to employ fire heat occasionally, or when needful to sustain the night temperature at 65° to 70°, and 75° in the daytime, ranging the temperature from 80° to 90° from sun heat. When the present mulching material on the surface of the border is well filled with roots add another covering about 3 inches thick of well-decomposed manure, which will materially help the trees in perfecting the second crop of Figs. Although a dry atmosphere is essential to assist the fruit when ripening in attaining the highest degree of perfection, the border in which the trees are growing must not be allowed to become excessively dry, or the crop will be affected injuriously and a rapid spread of red spider will be the result. Trees with the crop advancing, also those from which the fruit is gathered, should be syringed daily, and be well supplied with water or liquid manure at the roots. Trees in pots must have a mulching of short manure over the roots, supplying liquid manure. Stopping, thinning, and regulating the shoots must be attended to whenever necessary.

PLANT HOUSES.

Stove.—Poinsettias that were cut back and started some weeks ago have now made sufficient growth to afford cuttings. These should be taken with a heel when about 4 inches long, and inserted singly in small pots and placed in a close moist frame they will root quickly. When rooted and growing keep them near the glass in a house with a temperature of 55° to 65° artificially, and when the weather becomes warmer they may be transferred to cold frames, in which they will make stouter growth than those in heat. They should be shifted into larger pots as necessary, but those 6 or 7 inches in diameter are sufficiently large. The old plants also succeed well if shaken out when they have grown slightly, returning them to a smaller pot for the present; and when they have formed fresh roots and before they become matted shift them into the large pots, 7 or 8 inches being suitable. Good turfy loam and about a sixth of sand form a suitable compost.

Achimenes.—Baskets of these add greatly to the appearance of the conservatory during the summer months. The baskets should be large or small according to the size of the house, and they should be lined with sphagnum to prevent the soil being washed through in the operation of watering. The plants having been started in pans should be transferred to the baskets when they have growths about 4 inches long, inserting them head outwards through the moss all over the

bottom and sides of the baskets, then fill up with a compost of equal parts of turfy loam, leaf soil, and fibrous peat in equal proportions, with about a sixth of sand. The top of the baskets should also be planted. Keep them in a light position until they are in flower, and by attending to training the plants as they grow to neat stakes, so as to cover the whole of the surface, they will form complete balls of flowers.

Gloxinias are amongst the most useful summer decorative plants we possess for the conservatory, if kept a little closer than an ordinary greenhouse; but to make them available for this purpose they must not be grown in too high a temperature in the early stages or crowded amongst other plants. A night temperature of 60° is sufficient.

Orchids.—For some months to come most of the plants will be growing, consequently the temperature should be for the East Indian house, 70° to 90° by day and 65° to 70° by night; Cattleya house, 55° to 75° by day and 60° to 65° by night; and the Odontoglossum house, 60° to 70° by day and 55° to 60° by night. Any plants not growing satisfactorily should at once be examined, and if it is found that any part of the roots is decaying, that should be cut away. If the plant can be turned out without injuring the healthy roots these can then be washed, repotting in moderately dry material, very little water being given until new roots are formed. Shading will become more necessary, and must be so provided that air can be afforded freely, the canvas being kept at a distance from the glass to allow of a free circulation of air. In the East Indian house *Aerides*, *Vandas*, *Phalænopses*, and *Saccolabiums* must be kept constantly moist, and the foliage clean by frequent sponging with clean water. Where *Cymbidiums* require repotting attend to it at once, as they succeed best in rough peat with some small lumps of charcoal intermixed, providing good drainage, as they require a liberal supply of water. *Stanhopeas* that have flowered and started into growth should have fresh moss placed about them, and be grown on as quickly as possible, the baskets being dipped frequently in tepid water. Very little, if any, fire heat will be required for the cool Orchids for the next four months, the difficulty being to keep them cool enough. As the plants cease blooming repot any that require it, and any unhealthy at the roots should be shaken out, carefully washing the roots in tepid water, and place the plants in small pots. For cool Orchids a lean-to house with a north aspect is most suitable. Orchids intended for cool quarters whilst in flower must be gradually inured to the change by placing them in a somewhat cooler and drier atmosphere for a few days.

THE BEE-KEEPER.

BEE-KEEPING TO ADVANTAGE.

SECTIONAL SUPERS.

THE best time to put on a tray of sectional supers is when the bees become much crowded inside, when they will be glad to accept the new storehouse, and commence at once. I make the trays myself by nailing four pieces of wood together about 2 inches broad, with strips of wood along the bottom of the tray for the sections to rest on, and a broad piece up the centre to prevent the bees coming up between the sections instead of into them. Each section will require a little comb foundation; a piece 2 inches square, cut in two diagonally, will do for two. I take a little liquified wax and put it on the side of the section, and while hot rub the piece of comb into it, and when cool all is firm. This insures a start for the bees on the right spot. A separator will be required between each two sections, so that when the bees reach the separator they will seal and complete the section, otherwise they might work one section into another, as they are very prone to make very broad combs when storing surplus honey. I have seen combs 3 or 4 inches through. These separators can be made of any light material, but I prefer sheet tin. A sheet 10 by 14 inches, cut into three, will do well, and only costs me a penny. It is placed in between the sections, and rests on the top of the sides of the tray, so that leaves plenty of room for the bees to pass into the sections. The end sections have each a piece

of glass so as to have a complete enclosure, and it also serves for the bee-keeper to see how matters stand inside. A piece of excluder zinc will also be required to secure perfect sections. This excluder zinc is placed between the hive and the supers, and is to prevent the queen depositing eggs in the sections, which would spoil their appearance. The perforations in the zinc are such as only to allow the worker bees to pass through, excluding both queen and drones. Combs once bred in are spoiled for comb honey. The carpet being now removed from the top of the hive will do to cover the tray of sections.

In removing sections the centre ones are generally complete when those outside are well filled with bees and comb. At noon on a fine day I give a little smoke and take out some of the centre sections, and if complete I replace them with empty ones, and so keep the bees busy at work. I have also put tray above tray by removing the partially filled section and putting an empty one nearest the hive with the former on the top, when the bees worked on both simultaneously, the top one being a great inducement for them to continue. I find it a very bad plan to take a whole tray of honey at one time; better to take it away imperceptibly, or as near so as possible. For bees are very much like old mariners in that they are greatly guided by familiar landmarks; so much so indeed, that if you were to remove the old hive while they were in the fields, leaving the old cover on a strange hive, they would enter the old cover that contained the strange hive rather than go in search of the old hive with the new unfamiliar cover. I make them do it in some of my manipulations, so that if all the old familiar sections were removed at one time the bees might prefer swarming to enter a new "dry lot" of storehouses.

In conclusion, I would advise anyone who is fond of bees to study them in earnest, and they are sure to succeed. Do not be afraid of a sting; and if you do get one pluck it out and rub the part with a little table salt, vinegar, or liquid ammonia. But for anyone who may not be able to master their timidity, I would advise them to procure Ligurian or Italian bees. I have had them now for some time, and they are most gentle, good workers, and very beautiful, being striped with yellow.—COMBER.

TRADE CATALOGUES RECEIVED.

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Plants, 1882.*

J. Carter & Co., 237 and 238, High Holborn, W.C.—*Catalogue of New and Rare Plants, 1882.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Coleworts (*A Beginner*).—The present is a good time for sowing seed to produce plants for occupying ground that is vacated by early crops. A good breadth of Coleworts is of great value during the autumn and winter. Early York Cabbage sown now will also afford a supply of small and very acceptable heads in the autumn.

Early Roses (*G. H.*).—You complain of your "Roses flowering without leaves, and cannot understand it." We probably could not have understood it either if you had not told us your tree is a large Gloire de Dijon growing against a wall. The buds formed in autumn, and there has been no frost severe enough to destroy them, but the flowers from such buds are usually malformed.

Dividing Polyanthuses (*Admirer*).—The plants after flowering usually cease growing for a time and take a period of rest. Our plan is to let them enjoy that rest, and in a few months they start into growth strongly, the time very much depending on the weather. It is when they are commencing this late summer or early autumn growth that the plants should be divided, and the soil being then warm and sufficiently moist they root deeply before winter and form fine crowns for a future display of flowers.

Planting Flower Beds (*M. D. L.*).—You are quite right. The outer row next the margin of Lobelia should be planted first and not last, all the plants being of the same size and at regular distances apart; you can then fill

the remainder of the bed. If you start in the centre first and finish at the margin the outside row will be irregular and mar the appearance of the bed. You have no occasion to apologise for asking such a simple question, it is by overlooking simplicities that many fail.

Judging Ferns (*Paddy Carey*).—You have no right to allow your preferences for any particular varieties, whether they are old or new, to influence you in your judgment. Superior culture is a point of the first moment; and we think it would be decidedly wrong to award a prize to plants not well cultivated simply because they were new, and to pass over plants undoubtedly well cultivated because they were not new. At the same time the size of a plant, and indeed its condition, may not indicate superior cultural skill to the same extent as a smaller specimen would do of a kind more difficult to cultivate. In judging Ferns or any other plants the conditions of the schedule and the object intended to encourage should be ascertained, and then by the exercise of intelligence, combined with a knowledge of the plants staged, a sound decision can usually be arrived at.

Pansies and Violas (*Idem*).—There is no structural difference between Pansies and Violas as they are now grown in gardens, and it is impossible for anyone to define them, or to express the definition so that it could be understood. Violas are small Pansies in which one particular colour predominates, and the plants are very floriferous. Pansies have large flowers more sparsely produced, and, except selfs, have at least two colours clearly defined by belting. There has been so much intercrossing between Violas and Pansies that there is no distinct line of demarcation between the types.

Transplanting Junipers (*G. F.*).—The period was not too late for removing the specimens; we have transplanted some Junipers since then larger than yours, and they will shortly be established. Owing to the absence of rain and a dry atmosphere for a considerable time we took the precaution to syringe the shrubs freely and frequently, otherwise we should have feared that the transpiration would have been excessive before fresh roots formed to absorb the necessary quantity of moisture for maintaining the freshness of the leaves. We doubt if anyone has "done something" to the specimens that are dying, but it is obviously impossible for us to form a definite opinion on that point, and it is more likely that we have indicated the cause of failure.

Vines Scorched (*Amateur*).—The berry was of course crushed, but we could see both by the remains of it and the leaf sent that your vinery has been kept closed too long on some morning or mornings, and the ventilators have been opened too wide for reducing the temperature. The evaporation would then be so excessive both from the leaves and berries as to produce the results complained of. For instructions on thinning Grapes see reply to another correspondent. It is not usual for well-grown Strawberry plants in pots to be barren. Yellow foliage on Cucumbers is an indication of the presence of red spider. We shall be glad to have your notes on Mushroom culture.

Selection of Pelargoniums for a Small House (*F. J.*).—The following varieties you will find useful and effective in their respective sections, though there are others equally as good if you needed a large collection. *Golden Tricolors*: Mrs. H. Cox and Marie Stuart. *Silver Tricolors*: Mrs. Laing and Dolly Yarden. *Golden Bicolors*: Emperor of Russia and Black Douglas. *Silver Bicolors*: Mrs. J. C. Mappin and Princess Alice. *Single Zonals*: New Guinea and Commander-in-Chief, scarlet; Dr. Denny and Henry Jacoby, crimson; Miss Blanche Gordon and Mrs. Strutt, pink; Eclipse and Mrs. Moore, salmon; Eureka and White Clipper, white. *Double Zonals*: Jewel and Wonderful, scarlet; Madame Thibaut and Marie Lemoine, pink; Cælia Borgia and Le Centenaire, crimson; La Constitution and Dr. Jacoby, salmon; Nympe and Candidissima plena, white.

Stopping Vine Laterals (*Mundy*).—It is quite clear that you "cannot pinch the laterals at the orthodox one joint beyond the bunch when there are no bunches," and you want to know "what then?" It is not easy to say, in the absence of information as to the condition of the Vines and their distances apart. If they are from 3 to 4 feet apart and firmly vigorous you may stop the laterals at about the sixth leaf; you will act rightly, however, to allow all the foliage you can subject to the important, indeed vital condition, that every leaf can develop under the direct action of light. If the laterals are nearer to each other than a foot on each side of the rods remove some of them; we like to have them 18 inches apart.

Pyracantha Unhealthy (*Mrs. L., Chiswick*).—A small spray, shrivelled during transit by the want of a little damp moss or other material, is quite insufficient for enabling us to determine the cause of the present condition of the plant. If the spray is a fair sample it indicates that the plant lacks vigour, and requires either better soil or copious supplies of liquid manure; not a word is said, however, relative to the age or position of the plant to guide us in forming a definite opinion on this matter. There are no insects on the leaves before us, but the presence of ants suggests that insects are also present on some portions of the plant. This is almost certain to be the result if the specimen, as we suspect is the case, is in a debilitated state. We advise you to syringe it violently and frequently during dry weather, and encourage free growth by affording stimulants to the roots.

Thinning Grapes (*William*).—The superfluous berries should be removed immediately they are seen to have commenced swelling, and certainly before they "touch each other." They must not be touched with the hand nor the point of the scissors, nor should the footstalks of the berries removed be left half an inch long, as we sometimes see when the work is done roughly. We cannot tell you how many to remove, but as a rule sufficient space should be afforded for the tip of the finger to be placed between those remaining without touching any of them. Do not remove too many berries from the upper side of the top sholders; many bunches of Grapes are spoiled in appearance by the simple mistake against which we warn you.

Canterbury Bells (*Doubtful*).—You have certainly been wrongly informed. If you defer sowing the seed until August not one plant in twenty will flower next June. To have fine plants the seed should be sown at once. It germinates freely sown in the open ground provided the soil is not too heavy, or is at least covered lightly with fine soil. The seed being very small is often destroyed by being covered too deeply. If the ground is dry it should be saturated before sowing and shaded afterwards. A safe plan is, however, to sow the seed thinly in boxes placed in cold frames, or on a shaded place outdoors, the boxes being covered with squares of glass, the soil to be regularly moist.

Removing Plants (*D. W.*).—We do not understand what you mean, as you do not say whence you desire to remove the plants. Your safest plan will be to consult a solicitor on the questions you have submitted; but as far as we comprehend the case our reply must be in the negative in both instances.

Seedling Auriculas (*Dr. S.*).—The flowers were submitted to the experienced eye of "D., Deal," with whose opinion we entirely concur:—"It is almost

impossible to determine as to the character of flowers sent as these were. The pips should be taken off, inserted in pieces of paper, and kept quite flat; but as far as I can judge the varieties are only suitable for the border. If you sow a packet of seeds the chances are that you will get any amount of purple selfs, and amongst those sent there is a great similarity. The paste appears too thin. One variety has a fine truss, but the petals are too much notched. Bonnie Scotland is a large flower with a good petal, and worth trying again. The others are certainly not equal to many in cultivation."

Azalea Unhealthy (*C. D.*).—In all probability you erred in repotting the plant, and then it is not unlikely that the work was not done in a proper manner, even if proper soil was used; and further, it is extremely probable that the plant has been over-watered, and a number of the delicate roots have consequently perished. It is certain the root-action is defective; but as you fail to supply us with particulars requisite for our understanding the case fully, we are not able to indicate the treatment that should be pursued under the circumstances.

The Silver Tree (*J. B.*).—The plant of which you sent leaves is not a Pinus, but a member of the natural order Proteaceæ, and is known to botanists as *Leucadendron argenteum*. It is a native of the Cape of Good Hope, where it is known to the Dutch colonists as Witteboom, or Silver Tree, a name which it owes to the silvery appearance of the leaves. The plant is in cultivation, and may be seen at Kew and in a few other establishments where large collections of old and curious plants are grown. It was introduced towards the close of the seventeenth century, so that it is by no means a novelty. Leaves are imported for decorative purposes with the Cape Everlasting Flowers, and may be frequently seen in Covent Garden Market. A figure of the plant was published in the "Botanical Register" in 1826, but it does not show the peculiar whiteness of the foliage. The supposed cones are the heads of bracts and flowers.

Propagating Daphne Cneorum (*G. O. S.*).—This is readily increased by layers, and if you have a large plant in a pot the following would be your best course:—Make a bed of pure peat in the open garden, plant the Daphne in the peat, fasten the branches to the soil with pegs, and cover portions of them with peat midway between the tips and the main stem, and in due time many of the branches will have put forth roots. Sever them then from the parent plant and pot or transplant them to other beds. If the plant is already in a border it will only be necessary to peg the branches down into the soil rather deeply. Early spring or in autumn after the plant has flowered is the best time for the operation. It can also be increased by grafting upon stocks of *Daphne Mezereum*. Request your friend to send us samples of his Lilacs of the Valley, we know only three varieties.

Primula verticillata (*J. Bute*).—The Abyssinian Primrose is readily raised from seed, which it perfects freely in a greenhouse having a light and airy position. The seed, being small, should be only just covered with very fine soil, be placed in a gentle hotbed, and be kept moist and shaded from bright sun, which is injurious to this and all other Primulas. When the seedlings are fairly up keep them near the glass, and admit air moderately; when they have two or three leaves and can well be handled, pot-off singly in small pots. Return the plants to a gentle heat, shade, keep just moist, and when established remove them to a cold frame, and admit air freely, but avoid sudden drying the soil with water, and, on the other hand, do not let it become quite dry. It is well to give a slight shading under hot sun up to the middle of September, by which time the plants will be fit for 4½-inch pots, in which they should be placed with the ball entire, merely loosening the sides and surface soil. Place them in a pit or on the shelf of a greenhouse, and water as required, so as to keep the soil moist. Shift into 6 or 7-inch pots when the roots are showing at the sides of the pots, and with copious supplies of water the plants will flower in March. They are impatient of watering overhead. Syringing takes off the meanness of the leaves, quite spoiling their appearance. For potting use a compost of two parts light fibrous loam, one part leaf soil, half a part each sandy peat and old dry manure, with a sixth part each of silver sand and charcoal in pieces about the size of a pea, the whole well mixed and made fine, but not sifted except for sowing the seed. Efficient drainage is necessary.

Gardener Unsettled (*J. E. D.*).—We are sorry to hear that you have what you term "so much to put up with," but do not perceive in what manner we can aid you, especially as you do not state what your difficulties are. This, however, we will say—Whatever the impediments are, remove them if possible. We regret very much that you are not alone in your troubles. Many gardeners are "unsettled," and not a few we could name have not improved their positions by resigning their situations. A gardener makes a great mistake who leaves his charge suddenly because something in some degree unpleasant occurs, on the assumption that he can easily secure another appointment. Even if he is fortunate in doing so, there is still the risk of the new charge not being more agreeable than the old. But, as a rule, a new charge is not easy to obtain. There are just now, and it were wrong to disguise the fact, more men—thoroughly competent and excellent gardeners—than there are vacancies for them; and our advice is for every man who is even tolerably comfortable to hesitate before relinquishing his charge. Neither nurserymen nor anyone else can find positions for all gardeners. They may be willing, even anxious, to do so, but they must wait for vacancies, and there is no better proof of the comparative scarcity of these than the one fact that if a good gardener's situation is open there are fifty good men anxious to fill it. We offer you no inducement to leave because you have "so much to put up with," and we have only answered your letter thus fully because it may possibly have some effect on others who may be similarly situated to yourself.

Names of Plants (*J. D.*).—1, *Saxifraga granulata* fl.-pl.; 2, *Viburnum Lantana*; 3, insufficient for identification. (*W. B.*).—1, *Rumex acetosella*; 2, *Cerastium arvense*. (*Preston*).—The flower was much crushed, but it appears to be *Dendrobium fimbriatum*. (*B.*).—2, *Begonia weltoniensis*; 4, *Tradescantia zebriua*; 8, *Begonia sempervirens*; 9, *Davallia canariensis*; 10, *Chorozema cordatum*. The others are insufficient without flowers. (*J. W.*).—1, *Calanthe acinos*; 2, *Saxifraga granulata* fl.-pl.; 3, *Potentilla argentea*; 4, *Neottia nidus-avis*. (*An Old Subscriber*).—*Cratægus ovalifolia*.

Bees not Swarming (*J. E. H.*).—The clustering of bees outside the hive is an indication of swarming, but is not "a certain sign of immediate swarming." Your letter shall have further attention.

Bees Dying (*G. F.*).—Had you read attentively the various articles on bee-keeping that have appeared in the Journal you would have found that weak hives ought to be well fed in early autumn and not in winter. You have neglected to supply them with sufficient food at the proper time, and they have dwindled away. What remains should be fed liberally now, but in all probability the hive will perish.

COVENT GARDEN MARKET.—MAY 24.

THERE is no notable alteration in business, and the market is well supplied with all kinds of produce now in season.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	1 sieve	0 0 to 0 0	Lemons.....	case 15	0 to 20 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	4 0 6 0
Cherries.....	lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	16 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	1 sieve	0 0 0 0	Peaches.....	dozen	15 0 20 0
" Red.....	1 sieve	0 0 0 0	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	8 0 10 0	dessert.....	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples.....	lb.	1 6 2 0
Cobs.....	100 lb.	45 0 50 0	Strawberries.....	lb.	2 0 6 0
Gooseberries.....	1 sieve	6 0 0 0	Walnuts.....	bushel	7 0 8 0
Grapes.....	lb.	3 0 6 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	3 0 6 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	100	1 3 1 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	" pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	1 sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 6
Carrots.....	bunch	0 4 0 6	Kidney.....	bushel	3 0 3 0
Capsicums.....	100	1 6 2 0	Radishes..... doz.	bunches	1 0 0 6
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzoneria.....	bundle	1 6 0 6
Cucumbers.....	each	0 4 0 6	Scakale.....	basket	0 0 0 0
Endive.....	dozen	1 0 2 0	Shallots.....	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 6
G rlic.....	lb.	0 6 0 0	Tomatoes.....	lb.	1 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0



POULTRY AND PIGEON CHRONICLE.

THE PRODUCTION OF WOOL AND ITS USES.

THE growth of wool as a valuable agricultural production has been one of the most important objects of the farmer as far back as the feudal ages, when it formed one of the leading sources of national wealth, not only in Great Britain, but in almost every civilised country in the world. It has been said that woollen manufacture was introduced by the Romans in the arts of spinning and weaving, who established a manufactory for the purpose in the ancient city of Winchester. Under the Saxon monarchy it was assiduously cultivated, but in a domestic form. The females of the house were usually employed in the art, which was esteemed so honourable that princesses and noble ladies did not disdain to engage in it, and thus it is said the present term of "spinsters" for unmarried ladies had its origin.

In reference to the growth of wool, it is a fact that in almost every country, with the exception of Britain, the fleece of the sheep has formed the principal value of the animal. It has been, therefore, the chief object of the breeder's attention, the carcass being comparatively neglected. In this country, however, such has been the demand for meat of good quality that the wool has become a secondary object. That form of animal productive of meat is most sought after, and this will continue no doubt to be the case whilst wool of the best and finest quality can be readily procured from our colonies and other countries. To show the change which has taken place, a pound of best mutton is at present, and has been for some months past, worth as much as a pound of wool. In fact, the wool is only about one-tenth or twelfth of the value of the carcass of a long-woolled fat sheep. This exhibits in the most striking manner the great change which has taken place, and the failure of the attempt which was made in this country to grow fine wool and first-class mutton in combination by breeding sheep of a mixed and cross-bred origin.

Formerly, and particularly during the old continental war, which put a stop in a great measure to commerce between this and other

European countries, and before we obtained a supply of any consequence from our colonies, the wool of this country was valued in proportion to its fineness and its adaptation to felting purposes. Wool of this description realised such high prices as induced the growers not only to cultivate the fleece, but to breed from those animals which had the finest fleece. We well remember when the Spanish sheep were imported into this country, and the most sanguine expectations were entertained as to the result. We have seen some splendid sheep a cross between the South Down and Merino, very choice in quality, but of light weights, and such always commanded a ready sale in the metropolitan market, as the joints were small. The quality of the wool, too, resulting from the Merino cross was sufficient to induce many farmers to sacrifice some weight of mutton in the carcass, as the wool was so dear and so much in request that in some cases farmers were enabled to pay the rent of their land from the proceeds of wool sold annually on the farm. This, together with the increased number of small sheep which could be reared for stock on the hill farms, made many farmers very sanguine as to the result of the then experimental object of altering the breed of sheep for the sake of the wool. Soon after the peace, however, the restrictions on the importation of foreign wool were gradually lessened or removed, and the Merino sheep having been largely and successfully attended in Germany in the meantime, the superiority of the Saxony over the British wool was immediately apparent. The price at which it could be procured being comparatively low the price of wool fell, and with it the hopes of the farmers, so far as they were dependant upon it. It has, therefore, now become a settled point that fine wool cannot be grown profitably in this country.

Since the period to which we have alluded the fancy for South Down sheep has still remained, not on account of the value of their wool, but the high quality of the mutton, and the fact that upon the hills and downs this breed can be bred and reared in greater numbers than other sorts of larger sheep like the Hampshires and their crosses. These changes are the less to be regretted in consequence of our widely extended Australian possessions offering such a vast field for the successful growth of wool, where the extent of pasturage, the cheapness of the land, and the suitability of the climate altogether point towards this particular branch of industry. The wools from the colonies have gradually improved, and the best qualities now rival that of Saxony, and have also increased in produce to an enormous extent. British fine wool being thus, as it were, driven out of the market by a superior article attention has been very advisedly directed to quantity rather than quality, and thus a stimulus has been given to the long-woolled breeds of sheep. It was found more beneficial to have a fleece of 6 lbs. and upwards than of 3 lbs. only, and particularly as these breeds, having been greatly improved, could be cultivated to greater advantage in the midland counties and various other districts with regard to the flesh alone.

Thus we have the reasons why the production of long wool had so greatly increased in this country up to the period of 1872, for the agricultural returns at that date show the number of sheep to have been 32,246,642; and as the produce of wool amounted to 260,000,000 lbs. the fleeces must have doubled in weight, whilst the number of sheep had scarcely increased according to former reliable estimates. More recently the number of sheep in the United Kingdom amounted in the year 1874 to 34,837,597. From that date, however, the decrease has been almost as marked as the increase had been previously, until in 1880 the stock was reduced in numbers to 30,239,620, whereas had the former rate of increase been maintained the number in that year would actually have reached upwards of 40,000,000, which fact shows what enormous losses have been sustained by the farmers through the effects of liver rot and various other circumstances attendant upon wet and untoward seasons.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—In the northern counties and Scotland it is not too early now to sow Swede seed; and in the southern and eastern counties, although it is considered too early for that operation, yet it is not so for the early Turnips, Kohl Rabi, Thousand-headed Cabbage, Rape, and Cole seed, intended for early feeding by sheep preparatory for the Wheat crop, and especially upon the flat and stronger soils. Planting Cabbage, Kohl Rabi, and Kale may now be done by laying the plants in the furrow and covering with the plough; in this way, especially if the plants are strong, the weather is never too dry, as the roots rest upon the subsoil. They are covered in by the turned furrow, the only care required being that a man should follow the plough and place a little loose earth over the heart of those plants which may not have been buried. This plan will do after a fallow preparation; but we have always had a good growth and few failures when the land has been ploughed once only after Trifolium or any other green crop, the manure if yard or town dung may be laid out,

spread and raked into every second or third furrow as the case may be. As fast as the land is ploughed the men use a light one-handed spade for the planting, the spade being introduced at an angle of 45°; when lifted up leaves an opening for women to follow and introduce a plant just under the back of the spade, and holding it in its position until the man withdraws the spade, the man then in the act of passing on in the work with one foot and presses down the earth firmly over the root or stem of the plant. In this way, even if the land be very dry, the plants are sure to take; and the men when accustomed to the use of the spade in the way required, the women to insert the plants and boys to fetch them, much effectual planting can be done in a day. This plan is well adapted for any kind of plants usually placed out with the setting-stick, and are sure to succeed whether wet or dry weather prevails at the time of planting or follows it. We have on various occasions grown as fine Cabbages and Broccoli by this plan as we have seen, and it is far preferable to planting with the setting-stick, especially if the plants are tall and strong.

Horses, when drilling Swede or other root seeds or preparing the land is going on, may with advantage work on the land in the early part of the day, and proceed in afternoons when the weather is fine with the work of carting and stacking the hay. In using the mowing machine we prefer to make long days, and work three relays of horses in drawing the machine, the tedding machine following closely. With the use of our new process after twice tedding, the hay may on the third day be fit to carry to the stack in a partially green state if the home farmer is prepared with the exhaust-fan to withdraw the extra heat from the stack. It will, however, require to be built with a sack full of hay or straw drawn up the middle as fast as the rick rises, so that a chimney or hollow space may be left in the centre of the rick up to the level of the proposed eaves, and a hollow wooden or iron pipe with a 4 or 5-inch orifice built into the rick, reaching from one side to the centre chimney at about 3½ feet from the bottom to which the exhaust-fan (and these now are made in different ways) should be applied, and on the opposite side of the rick a hollow tube just large enough to admit the insertion of a thermometer with a handle attached, by which means the temperature of the rick can be ascertained. When the hay reaches 100° or corn reaches 80°, it is time to use the exhausting-fan, and to take care that it does not go beyond, for hay is injured at the temperature 150°, and will take fire at 200°. Practically carried out we consider this one of the greatest and most ingenious inventions of the age. If hay is now spoiled or injured either in the field or the stack it is the farmer's own fault; not even in the bad season of 1879 was there any hay injured where this system was properly carried out. There is, however, another great and important fact to be considered, for if the weather is quite favourable the hay may be placed together in a comparatively green state, in which case the quality and feeding value will be much greater than when dried by the sun, and certainly not subject to the waste and loss of the dried leaves falling, as is often the case in very harsh weather, during the process of making and carting. Nor are the exhausting-fan and other appurtenances costly, and we advise the home farmer to study his interest in this matter and prepare himself for both haying and harvest.

Live Stock.—We recently inspected a well-managed farm of about 250 acres, partly arable and partly pasture. We found the Hampshire Down tegs just shorn, fat and ready for the butcher, many of them having been sold in their wool; these were feeding on Trifolium, two foldings per day, and 1 lb. each of decorticated cotton cake, and they were in beautiful condition. We also saw a butter-making dairy of about forty Guernsey cows, nearly all being pure Guernseys, but bred on the farm; these were grazing in some meadows with a plentiful supply of grass, the cows, however, at milking-time received each 4 lbs. of decorticated cotton cake daily. There were also two capital pure-bred Guernsey bulls of different ages, about thirteen head of yearlings, besides calves for weaning, all pure Guernseys and bred on the farm. We saw in the dairy a beautifully made-up lot of butter in printed ½ lbs. almost as yellow as gold, and the quantity per cow made at present including some heifers with first calf just gone was stated to be 9 lbs. per cow per week. We mention this as a good illustration of the cattle management for such a farm, including the lesson to be learned from the great improvement in not only the arable but the pastures since we had last seen the farm just three years ago. Now this improvement can be clearly traced to the fact that every acre whether of meadow or newly laid pasture receives a dressing every year, besides the advantage from cake-fed stock. We shall return to this subject again.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—The Exhibition to be held at Cathays Park, Cardiff, during Whitsun week is expected to be one of the largest ever held by the Society—similar, in fact, to those held at Bath, Exeter, and Worcester. The number of entries in the live stock department is very great, but the great feature of the Exhibition will be in the trial fields which adjoin the show yard. Here elaborate preparations are being made for a full and complete display of the various methods which have attracted so much attention of late for saving and maturing the hay crop in untoward weather. Gibbs's hay-drier, which has been for some little time in the market, and Neilson's process, which has only within the past few months been brought under the notice of the farming community, will both be exhibited in actual work. The exhibition of bees and bee appliances

in a tent specially constructed for the purpose, and the delivery of lectures by an expert, with practical examples of the most approved methods of bee management and manipulation, which were introduced for the first time last year, and met with so much approval at Tunbridge Wells, will be carried out upon an even more complete scale at Cardiff under the auspices and direct superintendence of the British Bee-keepers' Association. The horticultural department will also maintain its attractiveness, and will include many choice specimens from the gardens and greenhouses of floriculturists of South Wales.

POULTRY AND PIGEONS

TUFTED FOWLS AS LAYERS.

(Continued from page 416.)

1, THE French tufted races are the Crève Cœur and the Houdan. The Crève Cœur is a noble bird in size and form, short-legged, up-standing, square, and robust. It lays larger eggs than any of the other tufted breeds, but we believe it to be a little less hardy than the Houdans. Crèves are black, though we have seen them pure white and blue. We fancy that the whites are albino sports, and so not to be cultivated and encouraged, and probably the blue are a cross between them and the black. Houdans are a race of very tough constitution, and bear more confinement than Crèves. They are good layers and nice table birds. Alone of all the tufted races they have a fifth toe. Whence this came we know not. Possibly it is attributable to some remote cross with an old Dorking breed. Houdans vary much in productiveness; at least, we have found them do so. They are shy and not easily tamed, which we think a disadvantage in any domestic creature. Both Crèves and Houdans must be good specimens to be handsome. Indifferent birds, with small, crooked, and falling crests, are simply hideous.

2, The many "Polish" sub-varieties are all beautiful, and there is, we think, no variety of poultry in which second-rate specimens are so tolerable as Polish. Indeed, sometimes birds, handsome in marking, and with crests well shaped, though too small for the show pen, are, we think, more beautiful than those with crests of inordinate size. We are now only giving rough sketches. For minute description of each sub-variety our readers must refer to former articles in these pages, or to good poultry books. The White-crested Blacks have always been our great favourites. The Silver and Golden were, we believe, in times past spangled; they are now generally laced—i.e., each feather is edged with black. The buff breed is very handsome, but seldom seen in England with real accuracy of marking, for each feather should be edged with white. Pure black there once were, and we know some now nearly black. White, too, are nearly extinct; but we could name a yard in which they have been revived, and where some beautiful pens may now be seen. Blue with white crests, and Cuckoos, too, exist here and there. Enough variety this, assuredly, to satisfy all tastes. But at present we are chiefly concerned with their useful qualities. There is a vague general idea that Polish are delicate fowls. We long accepted this common opinion of fanciers, but experience has convinced us that it is erroneous. Very probably where a single family has long been interbred to obtain some particular point—such as great size of crest or accuracy of marking—they are delicate, and so are Cochins or Brahmas, or any of the sorts reported to be hardy. Where, too, any kind of tufted fowls are turned into long wet grass or dank woods their crests get wet, matted, and miserable, and colds are sure to follow. Each breed has its peculiar adaptability to particular circumstances, and the special virtue of Polish fowls is that they bear confinement well, never pine in it, even when they have been reared at large, and lay as well in small as in large quarters. This latter characteristic is very rare and very valuable. We have found from many and constant experiments that hens of almost all other breeds invariably cease to lay when moved from a wide range to enclosed runs. This change must in nearly all large establishments of poultry be made when first the pullets are caught out of the pullet runs and placed in breeding pens. Thence it happens that at the particular time of year when eggs are most valuable and most required the best breeding hens are not laying. That, too, is not the worst. When a laying bird is thus suddenly checked it is no rare thing for her laying powers to be impaired, and for her to lay abnormal or shellless eggs when she does lay again. For these reasons a breed, the hens of which bear with equanimity sudden confinement, is very valuable. We have three Poland hens which, after being reared on a large and free range in 1880, were, in the autumn of that year, shut up in a small grass run, the worst and most exposed which we have. They have been in it ever since, and not one of them has ever ailed for a day. Since January 1st they have all

on an average laid every other day. They are not, it must be said, exhibition birds, but a cross between two breeds of Polish. It may seem a strange plan, and shock some of our fancier friends, but for use we cross the different varieties of Polish. The result is very interesting, and has given us many birds of remarkable beauty and colouring. The produce possess all the excellencies of the Polish race combined with the great vigour of constitution common to cross-breeds. They lay admirably, and the chickens are always plump and fit for the table. We advise our friends, where space is an object, to try our plan.—C.

AN OLD FANCY PIGEON REVIVED.

THE NORWICH CROPPER.

(Continued from page 416.)

WE now come to Dixon, who wrote in 1851, and was a clergyman near Norwich. All that he says that is original about pouting Pigeons refers clearly to the Cropper and not the Pouter—he hits off their flight exactly, and their colour, “blue or cloth splashed in various colours and white.” Dixon was not a very accurate Pigeon fancier, but more of a dabbler in natural history, with a gift of pleasing writing. He says “cloth” is buff; Mr. Lyell, that it is “silver.” The picture in Dixon’s book is also the portrait of a Cropper. Brent is the next writer (A.D. 1855). He says of the Dutch Pouter or Uploper, it “is a bird of very different build from the common continental variety [Mr. Brent knew the continental Pigeons well from long residence abroad], but it is much more slender, has a neat round crop, and carries itself very upright. They are not so large and awkward; their legs are longer but thin, and not much covered with feathers. The purest I believe are generally of one whole colour, as white, blue, or black, though reds, yellows, buffs, and even pied are to be had. They are merry active Pigeons, though perhaps not always the best of nurses; still I have had some of this kind that were excellent breeders. It is from this variety that our English Pouter is supposed to be descended.”

Here then we have more whole colours named, and pids as existing also; but I think Mr. Brent blunders in writing of the Dutch Pouter, or Uploper, for I believe the two were distinct, and that the Uploper is exactly and only the Norwich Cropper of Mr. Lyell, of my own recollection and present possession. Neither Fulton nor Tegetmeier refer or mention the Norwich Cropper as a now existing variety. We get just an historical hint in Mr. Lewis Wright’s book (A.D. 1879), as he says, “We think it right to put on record the fact that many inquiries have traced the Pouter fancy very far back, indeed to the city of Norwich, though it has long since departed thence in favour of Canaries.” This last remark is an error, as also is the statement “these varieties,” among them the Uploper, “seem to have disappeared.”

Thus have I traced this bird, and I assert without fear of contradiction that the Uploper under the name Norwich Cropper exists now, and is exactly what it was forty years ago, and most probably 150 years since, and that it is a true bred and most interesting Pigeon; and it is most curious how the bird has survived while never exhibited, and has lived on in spite of exhibitions which are so attractive to fanciers, as those birds shown take so much attention and are kept so extensively. There were pids in the last century, “they are to be had,” said Brent speaking of his personal experience thirty years ago. It was natural that they should be preferred to those without white on their crops. I, as a boy, sold the whole colours off, or killed them. Once begin and go on selecting and only the selected colours come, as now in a litter of King Charles’s spaniels, no black, white, and tan appear, because they are out of fashion and were constantly killed off, only the black and tan being kept. Returning to the Uploper, now Norwich Cropper. The habits of the bird are just what they were in 1735 when Moore wrote. I have some that trip so on their toes, “that when moving you might put anything under the ball of their feet.” I have a white and dark-tailed bird which leaps to my petting as well as to its mate. The legs are dull, very slender, and they are very upright. I have Blues—that is, Blue Pied—Black Pied, Mealy, Dun Pied, the Dun as in Carriers, and White with dark-splashed tail, and a sprinkling of dark feathers on the head. This last was a colour forty years ago, just exactly as now. That the Pids being the prettiest I am not surprised they were kept chiefly. But if the colour is the same, the nature of the bird the same, so is its flight. It is always taking low circling flies, sailing with scooped tail; and no Pigeon is so constantly in motion. The air around my rectory is often alive with wings, and to anyone who had never seen them their appearance when flying is very startling. I have sometimes thought they looked like large Cuckoos, for their bodies are long and their flight unlike other Pigeons. And hereby hangs a tale. One morning I was dressing and my Norwich Croppers had just been let out, round they were going low down in

the air. A policeman was passing down the village lane, a new policeman in the first bloom of bobbyhood. Open-mouthed, with eyes full of wonder, he looked at a bird. “What was it? Shall I inform my inspector? Has there been some breach of the Wild Birds Act? Shall I run him in?” Such seemed to be the thoughts of the amazed bobby.

The Norwich Croppers combine two usually opposite things—excessive tameness in the loft, and they are most amusing on the wing. I know of no other breed such good fliers and so tame, the great fliers being usually very wild—e.g., the Dragoons, Antwerps, &c.

They are trim pleasing Pigeons on the ground, strutting away on tip-toe, as upright as darts, and the crops of the cocks especially always round and full. As to colours there are, according to Mr. Lyell, eight Pids—black, cinnamon or red, yellow, mouse or dun, blue, dun or mealy, cream, cloth or silver. There are also whites with coloured tails.

The legs are certainly best when quite free of feathers. Size should be small, shape as Pouters, and I like especially a nice round and not flat back, and very upright carriage. The flight should be peculiar—a circling low, clapping sailing, and tail spread but “depressed in the middle.” The more Uploper tricks a bird has the more I like him, for his jumping is most pleasing to any eye, and altogether this old Pigeon revived is a most companionable, merry, and jolly little fellow.

I have had much pleasure in renewing acquaintance with this bird, and tracing his lineage, noting the stability of its markings and habits for about 150 years. Anyone in search of a Pigeon pet, amusing on wing and in loft, to them I would recommend the Norwich Cropper.—WILTSHIRE RECTOR.

P.S.—I wonder what Mr. Harrison Weir, whose memory goes back further than mine, would say of the Norwich Cropper.

OUR LETTER BOX.

Pekin Ducks (T. F. R.).—They are a comparatively new race, distinct, and much prized by many persons who have kept them. You will find an excellent article on these Ducks on page 188, vol. xxxviii., the issue of March 4th, 1880.

Pigeons (E.).—Runts are decidedly a profitable variety of Pigeons for table purposes, their size being much greater than that of any other breed. They would live well in an aviary of the size you describe. The less highly bred Runts, such as you wish to keep, breed freely. Their chief point is size. Birds weighing 1 lb. each would be found far more prolific than the exhibition specimens of double that weight. A good pair may be purchased for 10s. or 15s.

Milking Guernsey Cows (Guernsey).—It is one of the best traits in the character of the Channel Island cattle that they will, when properly milked, continue to give milk until the period of calving again; probably the milk may not be fit for use for several days previous to calving. It should, however, be drawn away to prevent the danger of parturient fever, which frequently occurs if the milk is allowed to coagulate in the udder.

Guinea Fowls (Mrs. Cox).—The chicks require food within, at most, six hours after hatching, and should be fed and cared for in the same manner as young Turkeys, though they may be allowed rather more liberty.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1882.	May.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sunn.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	14	30.347	55.8	47.4	N.E.	55.0	66.6	39.7	115.2	35.2	—	
Mon.	15	30.256	52.2	44.3	N.	54.8	57.0	39.0	115.2	34.6	0.010	
Tues.	16	30.398	52.7	43.6	N.E.	53.4	64.3	37.3	125.7	33.6	—	
Wed.	17	30.494	54.4	47.7	N.E.	53.3	64.2	37.8	114.6	33.5	—	
Thurs	18	30.435	53.7	47.7	N.E.	4.0	69.3	38.2	115.2	34.0	—	
Friday	19	30.217	58.8	49.9	E.	54.0	66.2	41.2	119.9	38.8	—	
Satur.	20	29.905	58.2	51.7	N.E.	54.6	64.4	44.0	114.8	39.3	0.038	
		30.293	55.1	47.3		54.2	64.6	39.6	117.2	35.6	0.048	

REMARKS.

14th.—Fine and bright; much wind and dust.

15th.—Cool, with some bright sunshine; slight shower in forenoon.

16th.—Fine, with bright hot sunshine.

17th.—Fine, bright; cool wind.

18th.—Fine, bright; warmer.

19th.—Fine and bright, with more cloud.

20th.—Fine, bright, and clear; high wind and much dust. A slight shower at 6 A.M. 21st.

Dry and fine; hot sun and very cold nights. In fact, the nights have been almost as cold as those of the second week in January.—G. J. SYMONS.



1st	TH	Linnean Society at 8 P.M.
2nd	F	
3rd	S	
4th	SUN	TRINITY SUNDAY.
5th	M	
6th	TU	
7th	W	

BOUVARDIAS.

SO highly popular are these plants, and so useful for various decorative purposes are their flowers, that a supply of them is indispensable in all gardens in which they can be grown. Yet in by no means all gardens do we find healthy floriferous plants. Too often they are tall and thin, with hard wire-like stems partially denuded of foliage, and bearing only small flower trusses sparsely. We want dwarf plants with crisp short-jointed growths clothed with dark-green foliage, and bearing large flower trusses abundantly. Now is the time for producing them, and the following is the method to pursue.

Young plants that were rooted early should now be encouraged to the fullest extent. Nothing is more prejudicial to them than a check in growth. The more rapid the development the more likely are the results to give satisfaction. A moderately brisk temperature and moist atmosphere are the chief factors in the production of good plants, provided, of course, proper attention be given to watering and stopping. It is advantageous to stop them at every joint, and thoroughly good bushy plants will then be obtained, the operation being regulated by the time the plants are required to bloom, the latter depending entirely upon the former, as the eyes of bloom are terminal. Constant attention is absolutely necessary in watering, as if they are allowed to suffer from drought more ills than are reckoned for will ensue; but if the drainage is efficient very liberal supplies of water may without disadvantage be given them. Red spider, a pest very frequently troublesome, will be naturally kept in check by maintaining a moist atmosphere, and this will be promoted if the pots are placed upon ashes or broken shells, or, in fact, anything which is cool and capable of giving off constant vapour; this is important. Green fly must be kept down by fumigation, otherwise the plants will suffer very considerably; this also is important.

When the small pots in which the plants were first placed are filled with roots, yet not crowded, they should be shifted into 48's, which for general purposes is the best size in which to bloom the plants. If specimens of unusual size are required they must, of course, be shifted into still larger pots; but, if properly cultivated, good plants well furnished with flowers may be grown in 48-sized pots. That size is a favourite one with market growers, and what can we desire for decorative purposes better than the plants some of those growers, notably Messrs. Beckwith of Tottenham, annually supply the market and trade with—clean handsome plants crowded with flowers? Perfect drainage is essential, as any-

thing like stagnancy is detrimental to their proper development. A compost of the following kind should be used for potting: Good fibrous yellow loam, well-decayed cow manure, leaf soil, and coarse sand in equal parts, potting the plants moderately firm. After they are fairly established in the new pots they may, if suitable weather prevails, be transferred to a cold pit, where they may remain until the end of September, ventilating freely during all favourable opportunities, as during the middle part of the day, shading lightly during bright sunshine, and, other things being equal, good plants may be anticipated, which, as a rule, if in active and healthy growth, will keep clear of insect pests.

Instead of cultivating Bouvardias in pots some growers plant them out in beds of well-prepared rich soil during the summer months in a cold pit, and at the end of the season very fine plants are produced, which are carefully raised and potted without very much inconvenience to the plants themselves, with the exception, perhaps, of the loss of a few leaves; but even that is reduced to a minimum if they are kept shaded after being potted until the roots are again active. Plants thus grown are very floriferous, while the trusses are considerably finer than those upon plants grown in pots. Good plants have also been grown upon spent hotbeds quite exposed. The plants at the end of the season were potted and placed under protection, a very large supply of flowers being produced. Some cultivators even advocate their culture in sheltered borders outside, but from what I have seen of plants thus grown the practice is by no means to be encouraged. The plants so treated are not so presentable as those grown in pots or planted in pits, where they escape the vicissitudes incident to an ever-changing climate.

Among the best white-flowered species and varieties most commonly cultivated, Vreelandi is highly esteemed, being very free, with full trusses of pure white flowers. It is sometimes known as Davidsoni, but I have seen a plant under this name which has white flowers with a distinct pale red tube, not nearly so effective nor free as Vreelandi proper, which is consequently the best plant to grow. Humboldtii corymbiflora is a very large-flowered kind, with long tubes and broad corolla limb almost as large as the flowers of a Stephanotis, and with deep green foliage. This is very handsome and effective, most valuable for the supply of choice cut flowers. Longiflora is a very fine species, grown very largely, with good trusses of sweetly scented tubular flowers nearly or quite 3 inches long. Jasminiflora produces flowers of a similar character to the last, and deliciously scented. It is very free, and is largely grown for affording flowers for cutting as well as for decorative plants. The leaves are smaller than those of the others and shining, and the flowers are pure white, of good substance. Alfred Neuner is a very distinct variety, with large trusses of very double pure white flowers. This variety, although of recent introduction, is undoubtedly a good addition to our winter-blooming plants. It is dwarf in habit, very floriferous, while the flowers last even longer than those of the single-flowered varieties, hence its great value for floral work, especially for buttonholes. Maiden's Blush cannot be regarded as a white-flowered kind, as the flowers are heavily blushed with pink. It is a valuable variety, as it produces good trusses in abundance, while the colour is very desirable.

Among the scarlet and pink-flowered varieties is Hogarth. This is a great favourite, producing fine trusses of deep scarlet

flowers with white centres, very freely produced, and is most easily cultivated, as it is of free growth. *Elegans* produces flowers as deep in colour, with trusses not quite so large, but more freely produced. The plant is very dwarf in habit, and it is one likely to be more grown than any with the same colour. *Leiantha* is very free, producing good trusses of bright scarlet flowers, but rather small; nevertheless it is a very useful plant. *Longiflora flammea* has flowers similar in form and size to the typical form, of a rosy pink colour, with the tubes rather paler. It is very desirable on account of the flower form, being so distinct from all the other scarlet or pink-flowered forms. *Reine des Roses* is an excellent variety, producing large trusses of pink flowers freely, and is worthy of attention. *President Garfield* is the name of a hybrid, a novelty of this season from America. It is said to produce fine trusses of rich pink double flowers very freely—characteristics which, if confirmed by the plant, should insure for it a leading place among *Bouvardias*. We trust it fully merits the eulogiums given to it, which, by the way, there is no reason to doubt. It is advertised to be sent out this month.—N.

VINES AT LONGLEAT.

(Continued from page 380.)

DAMPING DOWN.

INTIMATELY connected with the subjects of temperature and ventilating is that of damping down, or sprinkling the paths and borders with water for the purpose of creating a moist atmosphere. By many cultivators this is done once or twice a day at stated times during all weathers, and where the houses are small and the temperatures high I have no doubt it is necessary to damp frequently, but still I think there are some very erroneous ideas held concerning it, and that the practice is frequently carried to excess. It is plain to me that a moist atmosphere, supposing it were necessary, cannot be secured at all times by merely keeping the floor damp, or why do we often see deep-rooted plants in the open air drooping more during intervals of sunshine in showery weather than they do during settled sunshine provided they are not dry at the roots? There is a saying frequently used here, that "it dries too fast to last;" and the fact is very noticeable that when there is what the laundresses call "a good drying day," although the surface of the ground may have had an inch of rain on it within the previous twenty-four hours, the leaves of plants droop from the effects of the parched atmosphere, and there is every probability of rain soon following. When this is the case outside it will affect our houses more or less in spite of all our damping, according to the amount of ventilation given and the difference between the internal and external temperatures; also it will make a difference in this respect whether the ventilation has been given before the sun acted on the temperature of the house or after. I have stated before that if I enter a house with which I am pretty well acquainted at ten o'clock in the day for the first time, I can generally tell if the ventilation has not been given sufficiently early, and I have no doubt the difference is to be attributed principally to the hygrometrical state of the atmosphere. If the temperature had been allowed to rise considerably before air was given there would be a much larger amount of moisture escape than when it is given in anticipation of the rise, and when the difference is very marked it will last all day, and no amount of damping down will overcome it till the ventilators are closed or nearly so. At such times the temperature appears to be much higher than the thermometer

indicates, and the atmosphere is very suggestive of east winds and red spider.

We must not, then, depend on damping down exclusively to produce the soft atmosphere so necessary to the healthy growth of our plants, but damping occasionally is necessary, and I believe its greatest benefit is felt when performed immediately after closing during the afternoon or evening of a hot dry day. Continual damping when the weather is neither hot nor dry is positively injurious, and I have often seen it carried to great excess, so that the border in many places became almost sour on the surface, and if it was not stirred occasionally moss would soon be seen growing there. It is best to allow the surface to become dry sometimes for the purpose of securing aëration of the border, but the parts situate near the hot-water pipes should be frequently and heavily damped. My large house on the average is probably damped down about once a week after growth commences, but frequently it goes double that time; and, on the other hand, during the hottest and driest weather it is sometimes damped several evenings in succession. I do not advise this plan to be followed strictly in smaller houses, but I do advise judgment to be used, and not to have damping-down done regularly let the weather be what it may, for even if it does no harm to the plants it is, when performed unnecessarily, a waste of time, and has an adverse influence on the young men who are made to do it, by encouraging that which they are always too prone to—to work by rule and line without using their heads.

Damping down is quite as necessary during the flowering and ripening periods as at any other time, and I will notice some of the popular fallacies regarding the action of damp at such times when treating on the subject of watering. My Vines are never syringed; such a practice can do no good where there is nothing to make the foliage dirty, and it may do a considerable amount of harm in the way of producing flabby foliage, aerial roots, and imperfectly coloured fruit.

WATERING.

Probably the reason so few cultivators succeed with Vine borders which are entirely inside is that they never give them sufficient water. The rainfall of any given district must not be taken for a guide; the quantity of water a certain border requires can only be found out by practice on the spot. It will be remembered that my borders have no rubble in them, and are made very firm, so that they possibly only require half as much water as an average border; nevertheless the quantity given them will appear large. We cannot with any appliances we may invent use the water so economically and make it go as far as when it falls naturally from the clouds; and besides, the borders being altogether artificial and drained so that they cannot become waterlogged, it is better to give them too much than too little. Till I found out the quantity required I used frequently to make a hole with a trowel three parts through the border in several places, feel the soil at different depths, press a portion of it firmly in my hand, and let it fall on the solid ground to see if there was sufficient moisture in it to prevent it falling in pieces freely. If it would crumble when allowed to fall in this way it plainly wanted water, for we never find soil in which a Vine is thriving naturally become so dry as this, and most assuredly if our borders re-

main in such a condition at any season of the year the Vines will suffer for it. I am not alluding to the surface of the border, that I prefer to have nearly as dry as dust at least once a week; but at 6 inches, 1 foot, and 2 feet deep it must never become really dry at all. The nearest approach to being dry may be when top growth commences in spring, and knowing the habits of the roots I allow my borders to become rather dry at this time, so as to insure their remaining sweet; but on no account must they be allowed to become dry during autumn or the early part of winter when the leaves are falling or for some time after they have fallen, for the roots then are almost as active as they have been at any time. They have very important work to perform, and any stint of supplies will tell its tale during the following summer.

The directions now given for watering are very simple. The upright sashes of the side of the house are $4\frac{1}{2}$ feet wide, the roots of the Vines at present extend from the outer wall a width of 13 feet towards the centre of the house, so that each sash marks off a space of about 58 square feet, and this space at each watering gets forty potfuls, or 120 gallons. The average space occupied by the roots of each Muscat Vine now is the width of five of these sashes, or about 290 square feet. This space gets just 600 gallons at each watering, and as it is watered on an average ten times a year it will be seen that each Vine receives annually about 6000 gallons, or nearly 21 gallons to the square foot.

I used to water the borders once or twice during the winter, as I had become fully alive to the fact that the roots were active during a good part of that season, and that dry borders at such a time were almost as injurious as during summer; but since I have had the courage to continue the watering through the autumn while the ripe fruit is hanging, there has been sufficient moisture retained in the border to last till after starting time in spring. Watering is now generally commenced the first week in April, by which time the Vines are in full leaf, but have scarcely started root-action, and is continued at intervals of about three weeks till the end of October, especial care being taken that the borders are abundantly moist at flowering time and during ripening.

I prefer the water to have a temperature not lower than 60° , which is something near the height to which the border gets in summer. To secure this it requires a little warm water added during the early part of the season, say to the end of May, and after this time warm water is not used.

I do not wait for a fine day to do the watering while ripe fruit is hanging, as is so often recommended, but frequently utilise a wet one by employing a gang of labourers to do that when they cannot work outside. I have often noticed the surprise of visitors who were supposed to know something about Grape-growing, when they saw us deluging the borders during fog and rain in autumn, while ripe fruit representing hundreds of pounds in value was hanging above. The fact is fruit will keep as well over a wet floor or over water itself as it will when all around is dry as dust, if the warming and ventilating are managed in the way I have more than once pointed out, so as to prevent dew forming on the fruit; and on the other hand, if the house appears as dry as dust there is always sufficient mois-

ture in it to spoil a crop of fruit should the warming and ventilating be mismanaged.

It will be seen from the foregoing that I have no objection to keeping other plants than Vines in a vinery; and, in point of fact, the plants I grow there are of nearly as great value as the Grapes. The plants grown are mostly such as can be turned outside during the summer, at which time a full house would prevent our getting about the borders as freely as is required.

Previous to watering each time, the crust of the border, having become "as hard as a turnpike road," is broken up to the depth of 1 or $1\frac{1}{2}$ inch with a fork. Even this little disturbance breaks off a few small roots. It is, however, necessary to do this much for the sake of getting the water into the border regularly, but it is never moved to a greater depth. A plank is then laid across the pipes and the water is applied from the plank, the whole side of one compartment getting a fourth of its quantity at first, and then the operation is repeated again and again till the regular allowance is given. Trampling on the border is prevented as much as possible till it gets partially dry, after which it is rather beneficial than otherwise.

I have been advised by many that I ought to have hose for watering, but I prefer having it done as it is, feeling sure that the water is evenly distributed; and as I have said I often make use of wet days for the purpose, and it is always done by labourers whose only recommendation need be honesty in word and deed, and whose salaries are not very high, I do not think I should gain much by the change.—WM. TAYLOR.

(To be continued.)

COLUMBINES.

METEOROLOGISTS tell us that for a few days before the middle of May a cold wave passes over the latitude of our island with wonderful regularity. This year has been no exception to the rule, and May flowers have suffered accordingly, and amongst the sufferers no plant fares worse than the Columbine. In open situations the flower stalk becomes stunted and the buds abortive. This is especially the case with the seedlings transplanted during the winter and spring. Those which were moved to their flowering place early in autumn have fared better, especially if that place is sheltered and the soil at once open and retentive.

For the successful cultivation of Columbines it is necessary that the cultivator should grow them from seed. The seed should be sown very early and thinly in pans. Before they are crowded the seedlings should be transplanted into sheltered borders of rich fine soil, and growth encouraged all through the summer by watering, and, if required, by rich top-dressing. The successful flowering in the second year (and no Columbine ever flowers the same year it is sown) depends upon the luxuriance of their growth during their first year, and the plants cannot be too large and forward by autumn. I have found this to be so with all Columbines, but especially with those which have a tendency towards a biennial habit, such as *A. glandulosa* and *A. cœrulea*. Good cultivation during the first year will produce large and ornamental plants for the next spring, especially in *A. chrysanth* and its varieties, which are the most rapid growers amongst the genus *Aquilegia*.

When the year's growth of the seedlings is completed and the leaves show signs of withering they must be transplanted without delay to their flowering places and not again moved. These places should for all Columbines be sheltered from cold winds and hot suns, and if spring frosts cannot reach them they will flower all the better.

Some kinds of Columbine suffer far more than others from spring frosts. Plants which naturally inhabit a climate in which the difference of seasons is marked and regular suffer most from the irregularities of an English spring. The varieties of *Aquilegia canadensis*, especially that fine form known as *californica hybrida*, are always much injured here in exposed situations. *A. cœrulea* also becomes stunted by spring frosts and does best in a late

spring. *A. chrysantha* and *A. Skinneri* are not early enough to be injured much.

My garden here in Cheshire is at present full of Columbines in flower or in bud, but to classify them according to their species would be a most difficult task. No doubt where they are mixed together in borders they hybridise readily, and few species retain all their proper characteristics. I am in the habit of brushing selected flowers with a camel's-hair pencil and saving seed from these flowers. In some cases there seems to be evidence of a cross, but a very large proportion of the seedlings I set down as varieties of *Aquilegia vulgaris*, however much they may vary in colour. The best results are not obtained in the choicer but more exposed flower beds, but in shady and sheltered corners where the nameless remnants of beds of seedlings are planted at random; but still they surpass their pedigree competitors in ornamental qualities. For instance, I noticed some to-day in the angle between a west and a north wall, flowering luxuriantly and quite unhurt by weather. These are mostly the broad-flowered single kinds, pure white, chocolate-coloured with white cup, rose-coloured, blue, and all intermediate colours.

There is one *Aquilegia* which I can never raise from seed or keep alive if I buy the plant, and which I do not even know by sight—the true *A. alpina*. Nearly every other kind mentioned in nursery catalogues is represented more or less faithfully in my garden. My habit is to go round on a bright day to select fine flowers just as they open, to fertilise them with suitable pollen, and to mark those flowers with a bit of coloured worsted, and at the same time to mark for extermination as soon as their flowering is over all inferior plants. Some writers on flowers have gone so far as to say that all hybrid Columbines are a mistake. I am far from thinking so. If we can obtain the large clear-coloured flowers of *A. glandulosa* for instance, with the habit of *A. vulgaris*—and I have very nearly succeeded in doing this—it is a great acquisition to hardy flower gardening; but whether artificial fertilisation is adopted or not, it must be owned that it is very difficult in a garden where many varieties of Columbine are cultivated to keep any species pure.—C. WOLLEY DOD.

FRUIT AND WOOD BUDS.

I AM glad to see both "SINGLE-HANDED" and Mr. Iggulden have noticed my remarks on this subject. The first asks "if I am sure I know flower buds while dormant." I am by no means sure that I do, for that is the very thing my original query had reference to, as by dormant I presume he means that state when to all outward appearance the fruit bud is a wood bud. I am not referring to Peach and Nectarine buds, which of course are easily distinguished, but chiefly to Plums, and in a lesser degree to Cherry, Apple, and Pear buds.

What "SINGLE-HANDED" says about the bark of young trees serving to a certain extent the function of leaves, would agree with my idea that the change from wood buds to fruit buds is under certain circumstances effected during winter and early spring. I have not the least hesitation in stating my positive conviction that not one of the young trees I have referred to would have shown even the most weakly flower bud, much less have set and swelled every blossom, as some of mine have done, had they been left in the open. I think I know a fruit bud as well as most people, for I have always made it a habit to study my trees closely, being perhaps too much given to counting my chickens before they were hatched, not only when they were buds but also when they were blossoms, and when they were fruit too; and while I have often failed, having far less both of blossom and fruit than I expected, it has been very seldom indeed I have had more blossoms than I expected.

Let me ask both Mr. Iggulden and "SINGLE-HANDED" if in their experience they have met with anything like what I have recorded—two young Cherries grafted in April, 1881, to be studded with blossom in April, 1882; and though neither are now more than 2 feet high, to have well-set fruit on each. These were not large-branched grafted on strong stocks, with the blossoms and fruit formed on wood of more than a year's growth. They were grafted on small stocks with a view to keeping them miniature trees, and the scion was the usual previous year's growth. The blossoms are all on last year's wood. The trees were potted as I have said in October last, and have since been in an unheated lean-to orchard house.

The Prince Engelbert Plum referred to failed to show any blossom buds on the little short side spurs and branches, which I may say is the place they ordinarily appear first on a young tree. After all the older trees in the house had shed their petals and had mostly set their fruit, it suddenly produced at the top of the gross leading shoot a most abnormal set of flower clusters for

about 5 inches, and not 9 as I said at first, down the stem and all round it. These flowers came out in clusters, exactly like a Pear cluster, at different distances up a central stem. Whether this may be a peculiarity in the fruit stalk of this Plum I do not know, as this is the first time I have had it or seen it; but it seemed to me almost as if it had intended to be a little side spur, and suddenly changed its mind and produced a flower instead of what should have been a leaf. These flowers were very green, and I would have said very weakly. Certainly as they came out so late I never expected any of them to set, but they have done so without an exception, and the fruit is rapidly swelling, being now three-quarters of an inch long by three-eighths wide. It is the position in which these fruits have been formed that makes me incline to the opinion that the change from wood buds (which unquestionably these must have been in such a position in a young vigorous eighteen-months-old graft) to fruit buds must have taken place during winter, or more probably in this case in early spring. That this is possible is shown by what we have all observed—the occasional production of a few weakly blossoms by some trees long after the first bloom is over and the whole crop set.

I have great faith in the value of root-pruning, having learned it, as well as many another wrinkle, from Mr. Rivers' invaluable little books, which can hardly be too highly commended. But while I agree with Mr. Iggulden that the removal of my trees in autumn had an effect on them, it certainly is quite insufficient to account for what I have described, for I am positive no fruit or flower would have formed where they did, or on the trees they did form on, had they been in the open. My explanation is, the warmth of the roots in pots was so much greater than it would have been if in the ground, that that coupled with the mild climate of the house did it all.

One other Plum grafted in 1881, potted and brought into the orchard house in October, produced one blossom which was too weak to set. I have a strong cordon Goliath Plum, which is the counterpart of Prince Engelbert in appearance, but one year older. In the autumn of 1880 I lifted it and planted on an east wall; and though 1881 was such a wonderful year for blossoms owing to the fine summer and autumn of 1880, it had not one blossom. I root-pruned it in autumn last again, the leading shoot being allowed to grow unshortened just as Prince Engelbert. This year it produced blossoms and set its fruit well on several of the side spurs from the base about half way up, but not a trace of anything on the leader of last autumn.

I have a young Zéphirin Grégoire Pear two years old from the graft now forming flower clusters on the ends of two shoots from 3 to 4 inches long, which till the last few days had no appearance of being any more than side branches: I mean that they were not spurs which have been overexcited. The shoots now converted into flower stems have come from wood formed last year just the same as in the case of the Plum.

My letter is so long that I should conclude but that I wish to make one more remark on the effects of root-pruning or lifting fruit trees. My experience is certainly that the effect is mostly produced the second year after the lifting, though I have had it more than once in the following year; but has anyone observed that by root-pruning, even when carefully done, you may convert fruit buds back again into wood buds? In autumn last, and while the leaves were on them, I lifted two cordon Pears on Quince stocks three years from the graft. They had been root-pruned the year before, so that they were full of fruit buds. They were potted in 14-inch pots and brought into the orchard house, where they grew on without a leaf drooping or the slightest check, and yet only one of them produced a flower cluster, which did not set. The trees are in every respect most healthy. Now, I believe if they had not been removed every one of the buds would have produced flowers in the spring.

A Margil Apple three years old, which in autumn was full of fruit buds, was root-pruned by putting a spade underneath and giving it a lift without taking it out of the ground, but only to disturb the roots. Many of the buds in consequence reverted to wood buds, I believe from their winter supply of nourishment being curtailed more than it ought to have been. So that it seems that root-pruning may be as efficacious to change fruit buds into wood buds as wood buds into fruit buds, and that during the winter season.—IRISH RECTOR.

INSECTS ON CUCUMBERS.—Healthy growth and pure water are the best preventives of insects on Cucumbers. The true course is to follow the directions given on page 357 of No. 97. The time of watering is a moot point with gardeners. I will state my method, which is founded on much experience. It is never to apply water before 4 P.M. nor after 8 A.M., watering in very hot weather twice per day; but no rule can be laid down as to the number of waterings nor quantity of

water, as everything depends on the state of the beds or borders.—
HORTUS.

MR. PENSON'S AURICULAS.

IN your issue of May 18th a correspondent gave a short notice of the collection of Auriculas cultivated by one of our veteran florists—indeed, I suppose the oldest Auricula grower we have—Mr. Alexander Meiklejohn of Raplock. I have lately visited that grown by one of our youngest fanciers—one who showed his powers at the late Auricula Show at South Kensington by carrying off five out of the eight prizes for grey-edged varieties, and the first in fours and twos. At the time I said, to my mind, they were among the best-grown Auriculas in the Exhibition, and I am more confirmed in my opinion now that I have seen them in their home at Ludlow, and a brief notice of them may not be uninteresting, and perhaps encouraging, to young growers who are deterred by the supposed difficulty of getting up a collection.

It is not more than four years since Mr. Penson commenced to grow them. His purchases (I believe from Mr. Douglas mainly) consisted of one plant of each variety; yet so well has his earnest and intelligent gardener, Mr. Collier, worked that he has now sixteen plants of George Lightbody, twelve or fourteen of Lancashire Hero, eight of John Meiklejohn, &c., the plants of which—altogether there are about five hundred—are in the most vigorous health, and give promise of future success. They are grown in frames raised from the ground on legs, against a wall (at least this is their summer quarters) facing the north, so that the pots are about at the level with the hand, and are easily manipulated. The lights are on hinges, and are, when it is not raining, fastened back against the wall. I am quite sure that the Auricula thrives under various conditions. Some persons grow them in small pots, some in large; some in glazed pots, some in unglazed ones, and grow them equally well. If good compost is obtained and drainage carefully attended to, then I believe they will be found to succeed. The compost that Mr. Collier uses is three parts fibrous loam, one part old hotbed manure, one part leaf soil, charcoal, and a little sharp sand. The drainage is carefully attended to and the potting firmly done. Mr. Collier is this year using smaller pots than before—smaller in diameter but deep, called up in Shropshire "Long Toms." He washes all the roots of his plants, cuts the tap, and dresses the wound with powdered charcoal; and here I received a "wrinkle." When there are any eyes on this tap root he pots it, and from these has obtained many plants; in fact, if the rate of progress is maintained, and I do not see why it should not be, Mr. Penson's collection will soon be one of the very best we have. In some of the leading varieties he is strong, but not so in others, such as Colonel Taylor, Prince of Greens, &c., the fact being that these are shy in increasing. If they were otherwise they would soon be in larger numbers; while some, of which he has several plants, such as General Neill, Rev. G. Jeans, Mrs. Smith, Vulean, will be discarded to make room for them.

Mr. Penson's garden is charmingly situated, almost in the very centre of the town; but what a town! There are few places in England that can compete with Ludlow in beauty. Its magnificent church, built on the top of the hill, and in the very centre of the town; the grand old castle with its picturesque surroundings; the river flowing round a great part of the town; the foliage which springs up in every quarter amongst the buildings; the absence of factories, with their concomitants of tall chimneys and smoke—all combined to make it most charming, reminding one more of the city of Berne (on a small scale) than any place I have ever seen. Here in a delightful old house, situated close to the castle walls, I received most kind and hearty hospitality, and I can only hope that its accomplished owner will long live to defeat me and many others in the tilted field, and "bear his blushing honours thick upon him."—D., Deal.

NEPENTHES AT HOME.

(Continued from page 422.)

ANOTHER epiphytal species of graceful form and colour most lovely—red and green—is found at a higher elevation, 6 to 8000 feet. It is of lax habit, stems 30 feet in length, rambling among the wet mossy branches of low trees. This is *N. Edwardsiana*, and its largest pitchers are graceful as the torso of a Venus modelled by Phidias or drawn by Apelles. They are often 16 to 22 inches in length, with a delicately frilled rim to the mouths of the graceful urns. Alas! it still may only be seen at home within sound of the great fall of Kina Balu, which pours down a silver streak of water over a precipice clear 1500 feet fall into a deep rocky basin below. The streak of water is fully 2 yards wide, and as it plunges into the pool below churns its contents into

milk-white foam. The vegetation nigh to the pool is dense and rank, and the foothold treacherous. To get a clear view I climbed an overhanging tree. The roar of the water crashing down was awful, and after looking down into the foaming vortex into which the fall descended for a few seconds I was glad to descend; the roar was deafening, and all sense of reality seemed to vanish and leave one in a dream. I was glad when I emerged from the spray and could hear my own voice again, which was quite impossible to do when near the fall.

Here and there along our route, especially alongside the little streams which trickle down the hillside Rice fields of the Kiau villagers, we came upon isolated specimens or little groups of graceful slender-stemmed Tree Ferns (fig. 88). How they had escaped the fires by which the forest had been cleared off the land often puzzled us; yet the fact remained that they had been spared, and very fresh and cool they looked, their roots buried in the moist earth near the rills, and their feathery plumes shimmering in the blazing sun. They were sufficiently large and numerous



Fig. 88.

to give quite a characteristic appearance to the sloping Rice lands on the hills, as Bamboos and Palms do to the alluvial plains beside the rivers at a lower altitude. Take away from a tropical forest Palms, Tree Ferns, Bamboos, and that most noble of all fine-foliaged plants the Banana, and its "tropical" character is gone. The remaining vegetation, so far as its general or distant effect is concerned, is that of any European forest of deciduous trees as seen during summer. One type of tree beauty is absent from the tropics proper—that of the Pine and Fir woods of Northern Europe and America; and the fact brings home to us the great truth, that while art enables us to grow tropical Orchids, Ferns, and Nepenthes in our cold climate—the world's flora in fact—it is powerless to give the fragrance of Pine woods, the sparkle of spring-flowering bulbs, and the treasures of Alps and Apennines to those who live in the tropics. Hence tropical gardens, while their luxuriance is simply wonderful, are far less rich in species than are our own.

Another phase of the question, however, is perhaps worth a thought. Tropical vegetation must ever to a great extent be imprisoned—pent up beneath a crystal roof in European gardens;

but "at home" the Tree Ferns, the Palms, the Orchids, and other plants are free, waving their feathery plumes beneath a cloudless sky, or their flowers are kissed by the gentle breeze, and dangle from branch or fallen trunk in variety seemingly infinite.

At 9000 feet trees are sparsely distributed, and here and there are rocky patches of two or three acres in extent covered with coarse Sedges, Dianellas, and the singular alpine form of *Dipteris Horsfieldii*. Here, in stiff red loam surfaced with grit of sandstone and decomposed granite washed from above, grew the king of the *Nepenthes*, *N. Rajah*. The plants were of all sizes, broad of leaf and sturdy of habit, reminding us of a thinly planted and irregular crop of Cabbages. The large urns, some capable of holding two quarts of water, are not apparent at first sight, as they rest on the surface of the ground, buried for the most part in *débris* of dead Sedges and fallen leaves washed around them by the rains. It is a singular fact that the pitchers of all *Nepenthes* have far brighter colours when thus buried and shaded by moss and other forest *débris* than when fully exposed to the light and sunshine. This fact should be of service to all who grow these singular plants. Indeed, I often wondered whether the pitchers might not absorb nutriment from the decaying vegetation around them, as well as from the animal and vegetable *débris* and water which half fills their urns. Here on this cool moist mountain are thousands of *Nepenthes Rajah* in all sizes, seedlings in all stages of development. Now and then old patriarchs are met with 6 feet in height and flowering freely. Male plants are abundant, females rare. I was lucky to get plenty of good seed. Having seen all the treasures of Kew and Chelsea, the sight of these wonderful Pitcher-plants wild seemed like a dream. All troubles and fatigues vanished as these wondrous productions of Nature displayed themselves. Here and there among the pitchers were three or four kinds of terrestrial *Coelegynes* and other Orchids. The *Coelegynes* were especially interesting and in full flower; white and yellow, orange and brown, white and brown, and green and white being the prevailing colours.

Highest of all in what may be called the *Nepenthes* zone on the mountain comes *N. villosa*, a distinct species with rounded pitchers, very downy, and coloured like a fine Royal George Peach. The pitchers are 5 inches long by 3 inches broad, and have a frill to the rim as in *N. Edwardsiana*, these two being in this particular quite distinct from all other species if we except a singularly beautiful natural hybrid between the two, named *N. Harryana* after Mr. Harry Veitch. Near where the large Pitcher-plants are found, and not far from the great waterfall, is a little cave in the face of an overhanging sandstone rock. This cave formed our head-quarters while we stayed on the mountain. Ten thousand feet below us the thermometer never descends below 70° in the shade. Here it descends to 36°, and rain and mists are constant every day in the year. Every leaf and mossy trunk is dripping with moisture even in the sunshine at mid-day, and I never had the "hot ache" in my fingers so bad as when packing up *Nepenthes* plants in wet moss on this mountain in the tropics. Our Malays, and even the guides from Kiau, 7000 feet below, were fairly paralysed with the wet and cold. Good fires and woollen shirts threefold were acceptable, and even then I found myself huddling up close to the glowing embers, and anxious to keep my rugs and blankets over my shoulders. No actual frost is felt here, but radiation is great. Oh! thought I, how I should like to plant a few *Odontogloss* and *Masdevallias* here, feeling sure the climate would naturally suit them.

It is rare to obtain good views owing to the cloud and mist. Once we had a peep of Laya Bay and the sea, and saw Tilong towering up into the blue sky to the south-east. This journey to Kina Balu takes fully a month to accomplish, and is always an adventurous one to make even in the dry season. When the streams are high in wet times it is absolutely dangerous. I often look back to having twice accomplished it without the loss of a man or a beast, for sights and scenes "flash upon the inward eye," and dangers are pleasures when distance lends enchantment.—D.

THE NATIONAL TULIP SOCIETY.

THE annual show of this Society was held in the Botanical Gardens, Old Trafford, on Saturday, May 27th, when blooms were numerous shown, but not in quite such fine condition as in some previous years. They were mostly rather small, though the majority were as fresh and clean as could be desired.

For twelve dissimilar varieties Mr. S. Barlow was first with Sir Joseph Paxton, Heroine, Adonis, Dr. Hardy, Garibaldi, Talisman, David Jackson, Mabel, Annie McGregor, Friar Tuck, Ashmole, and Modesty, bright, even, and clean. Mr. D. Wolley was second with a pretty collection, including good blooms of Aglaia, Wm. Bentley, and Triumph Royal. Messrs. H. Travis was third, and R. Sharpley

fourth. For six dissimilar Mr. T. Parkinson was first with Triumph Royal; Mrs. Pickeral, Sir Joseph Paxton, Charmer, Talisman, and Dr. Hardy being fine blooms. Mr. S. Barlow followed closely, Messrs. H. Travis, R. Sharpley, Thurston, D. Wolley, and John Wood taking the remaining prizes.

For three feathered varieties Mr. H. Housley was first with Miss Pickeral, Royal Sovereign, and Mabel—neat, even, and fresh blooms. Messrs. T. Parkinson, E. H. Schofield, H. Travis, and D. Wolley were the other prizetakers, all with good blooms. The best feathered bloom was Royal Sovereign (shown by Mr. H. Housley), a large brightly coloured specimen. For three flamed varieties Mr. D. Wolley was first with Triumph Royal, Paxton, and Princess Royal—very handsome examples of beautiful varieties. Messrs. Thurston, H. Housley, J. Marten, S. Barlow, and E. H. Schofield followed in that order. The best flamed variety was Paxton, shown by Mr. T. Parkinson.

A large number of single specimens was shown, the leading exhibitors in each class being the following:—Mr. Parkinson, a feathered bizarre; fine flower, name of variety unknown. The same exhibitor had the best feathered bybloemen—Mrs. Pickeral. Mr. H. Housley had the first prize for Paxton in the flamed bizarre class. For a flamed bybloemen Mr. D. Wolley won first with Lord Denman of excellent form. Mr. Thurston had a beautiful bloom of Mabel, which was placed first in the flamed rose class, Mr. Parkinson being first in the feathered rose class with Charmer.

For six dissimilar breeder Tulips Mr. S. Barlow was first with Sir Joseph Paxton, Lucretius, Excelsior, Lady Grosvenor, Martius, and a seedling. Messrs. H. Wood, B. Simonite, R. Sharpley, T. Thurston, and T. Morris followed. For three breeder varieties Mr. Simonite was first with three pretty seedlings; Messrs. Housley, Barlow, Wood, E. H. Schofield, Woolley, R. Sharpley, and Thurston taking the other prizes. The best breeder was Paxton, shown by Mr. J. Wood. For a bizarre breeder Mr. J. H. Wood was first with Paxton. Mr. H. Housley had the best rose breeder, Lord Derby, and the best bybloemen breeder, Philip I.

THE FLOWER GARDEN IN SPRING.

THE graphic description of the noted flower garden at Belvoir on page 402, and the practical hints conveyed under the above heading by Mr. Bardney on page 406, may not unlikely result in others commencing to raise a stock of winter bedding plants. For my part I heartily wish employers would decide upon having more of these hardy plants grown. If at the same time they considerably reduced the number of beds requiring to be filled with summer bedding plants, not only would they greatly relieve their houses and frames during the winter and spring months, but their gardeners' minds as well, and in return they would be amply recompensed by, among other benefits, a display in the spring, which Mr. Bardney truly says can compare for beauty with any other style of bedding. It may be said, "Why should a spring display interfere with the summer bedding arrangements?" It does not, perhaps, to any material extent in some places, Belvoir or Cliveden for instance; but where labour and space are inadequate, to attempt both styles simply means eventual failure in doing justice to either. It is very well to say such and such a plant "claims immediate attention," and "are readily obtained from seed or cuttings," when perhaps the whole of the time and space has to be devoted to the proper preparation and planting of the summer kinds. Again, it not unfrequently happens some of the hardy plants are at their best in May, and the gardener receives orders not to interfere with them till they are becoming shabby. This often does not happen till the beds are deprived of all moisture and fertility, and are, therefore, in anything but a fit state for the reception of the summer plants. If beds are filled with spring-flowering plants in the autumn, and again with summer bedding plants the following May or June, they ought to be well manured at least once a year, and the preference should be given to the summer preparation, as such kinds as *Violas*, *Calceolarias*, and *Verbenas* especially require a moist and fertile soil to maintain a lengthened display of bloom. I am a great admirer of winter or spring bedding plants, and, having had experience with them, am in a position to offer an opinion both on their merits and the labour consequent upon their extended culture.

Many gardeners are already overworked, and for employers to request them to raise a stock of plants to succeed the summer kinds is simply a case of overriding a willing horse. What I am always pleased to hear is the fact of gardeners receiving orders to turf over a certain number of beds, or, better still—and which I am bound to state is a very rare occurrence—orders to completely level an elaborate design, and to form a few simple beds at different places where they can be disposed without spoiling a good expanse of turf. Fewer beds may easily insure superior planting in both styles if requisite. What I object to is attempting both styles when perhaps one, as at present conducted, is too much for those responsible.

Next season we shall have to fill about a dozen beds only with spring plants, and as these will generally during the summer be occupied with carpeting plants, one style will not materially affect the other, consequently we hope to do both well.

Several of the kinds enumerated by Mr. Bardney will be grown, and in addition some good bedding varieties of Wallflowers, such as the Belvoir and other dwarf advertised varieties. We also experience much difficulty in preserving young seedlings from slugs, but the best remedy is to sow the seed in boxes similar to those used for bedding plants. Suitable light soil can easily be employed. The boxes may be placed under a north wall or ashes, and the seeds easily kept uniformly moist, thereby insuring the germination of nearly every good seed. The seedlings before becoming crowded to be pricked out in suitable positions. Wallflowers to be sown at once.—W. I. M.

ROSE SHOW FIXTURES.

As far as I have as yet been able to ascertain, the following are the principal Rose Show fixtures for the present season. Those marked * are affiliated to the National Rose Society, and those † are not exclusively Rose societies:—

June 27th	.....	*Maidstone.
" 28th	.....	*Bath (National Rose Society).
" 28th	.....	*†Croydon.
" 28th	.....	†Hitchin.
" 29th	.....	*†Farnham.
" 29th	.....	Hereford.
" 29th	.....	Mansion House, London.
" 30th	.....	*Horsham (?)
" 30th	.....	*Farnham (?)
July 1st	.....	Crystal Palace.
" 1st	.....	Reigate.
" 4th	.....	*South Kensington (National Rose Society).
" 6th	.....	*Canterbury.
" 6th	.....	Oxford.
" 6th	.....	*Brockham.
" 7th	.....	*Sutton (Surrey).
" 8th	.....	Alexandra Palace.
" 11th	.....	Christleton (Cheshire).
" 12th	.....	*Cardiff.
" 12th	.....	*Ipswich.
" 15th	.....	*Birkenhead.
" 18th	.....	*Leek.
" 19th	.....	*Darlington (National Rose Society).
" 20th	.....	*Helensburgh.

Norfolk and Norwich, Farnham and West Kent, I do not exactly know.—D., Deal.



THE number of visitors admitted to the ROYAL HORTICULTURAL SOCIETY'S GARDEN, South Kensington, on payment of twopence each on Whit-Monday was 11,158.

— A PERTSHIRE correspondent, who has been much interested in the account of the CALVARY CLOVER in our issue of May 18th, desires to know where seeds can be procured, especially any coming from Mount Calvary.

— WE had the pleasure of inspecting MR. MCINTOSH'S RHODODENDRONS early in the week, and they were magnificent. Although the early varieties are fading daily, the display will be worthy of a visit during the week; but not a day should be lost by those who desire to see the finest varieties in perfection. All who are interested in these beautiful shrubs are most readily permitted to see those in question, but numbers of visitors arrive a week too late and disappointment ensues. Dunevan, it may be added, is a mile from the Walton Station on the South-Western Railway. Some of the prominent varieties in this rich collection will be referred to in a future issue.

— AT the summer Exhibition of the ROYAL HORTICULTURAL SOCIETY OF ABERDEEN, the schedule of which is now before us, no less than 173 classes are provided in the different sections of plants, flowers, fruit, and vegetables. The Show will be held in July, but the date is not yet fixed. The schedule of the autumn Show of the same Society comprises 165 classes. Mr. Alexander

Finlayson, 34, St. Nicholas Street, Aberdeen, is the Secretary of the Society.

— A NUMBER of the leading BELGIAN HORTICULTURISTS, chiefly connected with the gardening institutions of Ghent, have signified their intention to visit this country with the object of seeing examples of the best illustrations of English horticulture. A Committee has been appointed, consisting of the Council of the Royal Horticultural Society (with power to add to their number), who will raise a fund wherewith to meet the necessary expenditure that must be incurred to give a fitting reception to our Belgian brethren, who on their part have always shown the warmest hospitality to Englishmen whenever they have visited the great Belgian exhibitions. Dr. Masters, as Foreign Corresponding Secretary, and Dr. Hogg, as a member of Council of the Royal Horticultural Society, have been deputed to form a working sub-Committee and to draw out a programme for the entertainment of the visitors. Among the places intended to be visited are Kew and Richmond Park, Frogmore, Windsor, some private gardens, London market gardens and market florists, Kentish orchards, large market forcing establishments, and last, though not least, it is hoped that an arrangement may be made to entertain them at the banquet of the Gardeners' Royal Benevolent Institution. Our visitors, to the number of from twenty to thirty, are expected to arrive in London on the 25th of June, and on Monday the 26th the first excursion will be made, the whole of the remainder of the week being devoted to some particular attraction.

— MESSRS. CARTER & CO. have sent us bulbs of the new GOLDEN QUEEN ONION, which were exhibited at the Royal Horticultural Society, South Kensington, December 13th, 1881. These bulbs were placed in a cupboard in one of the offices and forgotten. They were accidentally discovered on May 25th, and there are no signs of growth either at the roots or apex, nor no signs of anything having been done to arrest growth. They are now, May 30th, perfectly sound.

— WE have received the first part of a work published by Messrs. W. & A. K. Johnston, Edinburgh and London, entitled "THE BOTANICAL ATLAS," by Mr. D. M'Alpine, F.C.S., lecturer on botany at Edinburgh. This is, as the title states, intended to be "A Guide to the Practical Study of Plants Containing Representatives of the Leading Forms of Plant Life." It is to be completed in thirteen monthly parts, each having four coloured plates with descriptive letterpress. That before us has plates giving dissections and anatomical details of Chickweed, Maiden Pink, Campion, Fumitory, Wallflower, Herb-Robert, white Dead Nettle, and Sage, all being admirably executed, and the work will prove a most valuable assistant to students of botany.

— IN the Heath house at Kew there are now several very interesting plants in flower. In fact, there is always some uncommon plant or flower to be seen in this house. Amongst the most noteworthy is the North American Lady's Slipper, *Cypripedium spectabilis*, which is indeed a charming flower, and should be in every garden. *PRIMULA MOLLIS*, an Himalayan species, is now flowering freely. In foliage it so much resembles one of the scented Pelargoniums, and when not in flower may easily be mistaken for one. The flower spikes are produced in the same way as *P. japonica*; there are as many as six whorls or tiers of flowers on the one stem. The individual flowers are not so large as *P. japonica* or even so brightly coloured. Nevertheless, for indoor decoration it is worthy of a place. *Chaenostoma hispida* is a neat-growing little plant with small foliage, and completely covered with its white star-like flowers.

— THERE are several SPECIES OF *OXALIS* in the same house. These charming little plants are greatly neglected, and would well

repay to be more extensively grown. *O. partipura* has pure white flowers and very free. *O. articulata* is one of the showiest of the group, producing trusses of large dark purple flowers. *O. floribunda* is one of the most attractive; the flower stalks are nearly a foot long, and droop gracefully over the sides of the pot. *O. bonariensis* is a very neat and pretty species; the flower stalks are about a foot in length, surmounted with six or eight pinkish-white flowers.

— THE NATIONAL ROSE SOCIETY'S EXHIBITION AT BATH will be held in the Sydney Gardens on Wednesday, June 28th, when a number of valuable prizes will be competed for—six silver cups, besides medals, pieces of plate, and the ordinary money prizes. In the nurserymen's class for seventy-two single trusses the first prize consists of a silver cup, value ten guineas, presented by the Mayor of Bath, with £5 from the Society's funds. In the amateurs' class for thirty-six single trusses the corresponding prize will be a silver cup of the same value as the above, presented by the Floral Fête Committee, also with an additional £5 from the Society. The annual Exhibition in London will be held on Tuesday, July 4th, in the Royal Horticultural Society's Gardens, South Kensington, and not at the Crystal Palace as in some previous years. The ordinary liberal provision is made for exhibitors. Silver challenge cups are offered in the chief nurserymen's and amateurs' classes. Several pieces of plate are also contributed in several, with a gold medal for the best three trusses of any new seedling Rose not in commerce.

— WRITING on HERBACEOUS BORDERS an experienced cultivator of them remarks:—"It cannot be too quickly understood that collections of herbaceous plants in private gardens will seldom give satisfaction. What is wanted is a selection of sorts that will give an uninterrupted display of flowers from February or March to October or November. Our borders have been filled and gay for over three months past, and from the experience of past years I can state that they will continue so until the end of October at least. The only reason for such different results is to be found in growing good sorts alone and plenty of them, and turning kinds which do not come up to the standard of excellence out into the rubbish heap. Newness or rarity of a plant is all very well in its way, but so long as we have to produce a display of flowers either with herbaceous or bedding plants or both combined we must look at the quality of that display as a whole, and not at the newness or the rarity of the plants employed, or the herbaceous border will not give satisfaction."

— THE last issue of "L'Illustration Horticole" contains coloured plates of *SPATHIPHYLLUM HYBRIDUM* and *KENTIA LUCIANI*. The former is a fine Aroid, with lanceolate bright green leaves, and large white spathes 5 to 6 inches long and 2 to 3 broad, the spadix being marked with green and white. It is said to be the result of a cross between *S. Patini* and *S. cannaefolium*. The *Kentia* is a graceful Palm, with fine curving pinnate leaves, the young leaves having a slightly reddish or bronze tint. It is from New Caledonia, seeds having been introduced in 1877, and it has been named in honour of M. Lucien Linden.

— AT the time the Reading Spring Show is held Messrs. SUTTON & SONS' CALCEOLARIAS are usually in their best condition, and few horticulturists visit the one exhibition without also inspecting the other, for these plants hold an important position in public favour, and their popularity appears to be increasing rapidly. The results of the long-continued careful selection practised by this firm become more evident each succeeding year—an increased refinement of blooms is ensured, with greater diversity of brilliant colours, and a dwarf, compact, extremely floriferous habit, admirably adapting the plants for decorative purposes generally. In the house devoted to the stock of

plants for furnishing seed the display last week was brilliant in the extreme, the tints being so varied, clear, and rich, and the blooms so numerous, that the effect upon first entering the house was quite dazzling. Selfs from pure yellow to deep rose are represented by fine plants, one approaching in colour very nearly to scarlet, and the yellows merge into creamy whites. The parti-coloured flowers are especially varied, the ground tints ranging from rich gold to white, with heavy blotches, dots, or lacings of darker hues—rose, crimson, magenta, and maroon. In form the flowers are all that could be desired; they are not large and coarse, but mostly of medium size, full and round, and where they attain unusual proportions the symmetry is still preserved. Such, in brief, is a few of the leading characters of an excellent strain, and for their assiduous efforts to improve these useful plants Messrs. Sutton and their manager deserve much credit.

MANCHESTER WHITSUNTIDE SHOW.

MAY 26TH TO JUNE 2ND.

THE annual celebrated Exhibition of the Royal Botanical and Horticultural Society of Manchester was commenced on Friday last in the gardens at Old Trafford, and will terminate to-morrow—a rather prolonged period for plants to remain at one Show. But this apparently had no deterrent effect upon the exhibitors, who mustered in strong force, and rendered the display both varied and extensive. The three structures usually devoted to the entries at this Show were fully occupied. The magnificent Exhibition building contained a grand array of groups, Rhododendrons, Azaleas, Clematises, with stove and greenhouse plants constituting the most imposing features, the bank of Clematises at the higher end of the building forming a unique and handsome mass of colour. The heated glass structure was chiefly occupied with Orchids, new and fine-foliage plants, the first-named being alone an exhibition of such extent and beauty that, finely as Orchids are invariably shown at Manchester, those at this Show have scarcely been surpassed, and in some respects they have not been equalled. The third portion of the exhibits was placed in a long marquee near the glass building, and comprised the Ferns, table decorations, fruits, hardy plants, and miscellaneous groups from nurserymen, among which the large collection of greenhouse Rhododendrons from Handsworth was a prominent feature.

In the afternoon of the opening day the weather proved favourable, though the morning was so wet that grave doubts were at one time entertained as to the prospects of the Show. With occasional, but not long continued, interruptions the sun shone during the latter portion of the day, adding greatly to the brightness of the display, and attracting visitors in large numbers.

Orchids.—Seven classes were devoted to these, and the collections staged in competition formed two grand banks of plants, one on each side of the central bed in the glass show house, and presenting a mass of rich, delicate, and varied tints such as no other plants could produce. Although what are termed "made-up specimens" were largely represented, yet single examples of considerable size and merit were by no means scarce; all were characterised by most satisfactory health, and in the leading collections by an unusual profuseness of flowers. Perhaps at no horticultural exhibition held in this country are Orchids so largely and well shown as at Manchester, and these classes invariably form one of the leading features interesting both to the horticulturist and the general public. It is certain, however, that while Orchids form such an important feature in the Show, it would be greatly to the disadvantage of the Society to discourage "the made-up specimens," which, though unsatisfactory in a practical gardener's point of view, are far more admired by the numerous untechnical visitors. At this Show it was the general opinion of experienced Judges that a more beautiful or larger display of Orchids has not been held in England—a sufficient indication of the merit of this part of the Exhibition.

The amateurs' section was well provided for and largely represented, the chief class being that for fifteen specimens. Mr. J. Hill, gardener to G. Hardy, Esq., Pickering Lodge, Timperley, was most worthily awarded the leading prize for specimens of great size and finely flowered. *Dendrobium Wardianum* with thirty to forty growths, some of which had two dozen flowers each, was magnificent; *Cattleya Mossiae* 4 feet across with forty to fifty blooms; *Dendrobium densiflorum* with thirty racemes; *Anguloa Clowesi* with two dozen blooms; *Odontoglossum vexillarium*, 4 feet or more in diameter, loaded with flowers; *O. crispum* had three spikes of flowers 4 inches in diameter, the two best having a dozen blooms; the bright yellow *Dendrobium clavatum*, *D. Jamesianum*, *Cypripedium Lawrencianum*, *Masdevallia Harryana*, and *Cattleya Mendeli* were the most noté-

worthy plants, all being similarly large, fresh, healthy, and well flowered. Mr. T. Osman, gardener to R. B. Dodgson, Esq., Beardwood, Blackburn, was a close second with a highly meritorious collection, including *Dendrobium Ainsworthii*, *Lælia purpurata*, *Odontoglossum vexillarium*, *Masdevallia Veitchiana*, and *Calanthe veratrifolia* being the leading plants, admirably grown. Mr. J. Waddell, Orchid grower to Joseph Broome, Esq., Didsbury, took the third position with neat and healthy plants.

Mr. Hills was again in the chief position with nine plants, *Odontoglossum vexillarium* roseum, very richly coloured; *Anguloa Clowesi*, with twenty flowers; and *Cattleya Mossiæ*, with fifty or sixty blooms, being the best. Mr. W. Holmes, gardener to O. Schneider, Esq., Cromwell Range, Fallowfield, followed, his most telling plant being a sample of *Oncidium sphacelatum majus*, with seven panicles of flowers 4 feet in length. Mr. Osman was third with smaller but fairly good plants, *Cypripedium superbiens* being well represented. For three plants Mr. G. Beddoes, gardener to R. P. Percival, Esq., Cleveleys, Southport, gained the chief award with handsome examples of *Odontoglossum vexillarium*, *Anguloa Clowesi*, *Cattleya Mossiæ*, and *Cypripedium Lawrencianum*. Mr. W. Sherwin, gardener to Morton Sparke, Esq., Charwood House, Hurston, was a good second. Mr. McGregor, gardener to C. Walker, Esq., Milnthorpe, was third.

For six *Cattleyas* in flower Mr. J. Hill secured the leading award with well-flowered specimens of *C. Mossiæ*, *C. Mossiæ marmorata*, *C. Mendeli* (two varieties), *C. Warneri*, and *superba*. This was the only collection shown.

The nurserymen's section, though fewer classes were devoted to them, was well represented; Mr. H. James, Lower Norwood, London, secured the chief position for sixteen specimens with good examples of *Oncidium concolor*, *Dendrobium nobile*, *Oncidium Marshallianum*, *O. macranthum*, and *Lælia purpurata*, amongst others of little less merit. Mr. J. Cypher, Cheltenham, followed very closely with smaller but choice plants, including *Dendrobium luteiflorum*, *Masdevallia Harryana* Bull's Blood, *Dendrobium suavissimum*, and *Odontoglossum citrosum*. For ten specimens Mr. H. James was again the leading exhibitor, his best plants being *Odontoglossum citrosum* with twelve spikes, *Oncidium macranthum*, and *Masdevallia Harryana*; Mr. J. Cypher following with very similar specimens to those in his other collection.

Stove and Greenhouse Plants.—These plants were shown in excellent condition. Mr. James Cypher, Cheltenham, took the lead in the open class for ten plants in flower. Amongst them were fresh, large, and well-grown examples of *Azalea Holfordiana*, 6 feet high and nearly as much through at the base, and densely covered with bloom; *A. magnifica* was also grand; *Anthurium Schertzerianum*, a wonderful specimen 4 feet through, carrying a good number of spathes of a very large size; *Clerodendron Balfourianum*, good and well bloomed; *Stephanotis floribunda*, a neat healthy specimen. *Dracophyllum gracile*, *Aphelaxis macrantha purpurea*, *Erica Cavendishiana*, and *E. depressa* were all well flowered and in the best condition. It is a question if ever two finer examples have been seen. Messrs. Cole & Son, Withington, were a good second with *Ixora Williamsii*, a grand plant and profusely flowered; *Erica ventricosa magnifica*, *E. ventricosa coccinea minor*, and *E. Spenceriana*, the latter seldom seen in better health; *Eriostemon scabrum*, very good, and the best *Azaleas* in the Exhibition.

In the corresponding amateurs' class for eight plants Mr. C. Paul was first with well-grown examples of *Stephanotis floribunda*, *Erica Cavendishiana* very fine, *E. Victoria*, *E. ventricosa*, and a large well-flowered plant of *Anthurium Schertzerianum*. Mr. G. Smith, gardener to John Rylance, Esq., Longford Hall, Stretford, was a good second, the collection containing fine plants of *Allamanda grandiflora*, *Bougainvillea glabra*, and *Azalea Roi Leopold*.

In the open class for six *Ericas* Mr. Cypher took the lead with good plants even and well grown, the following being his best plants—*E. Cavendishiana*, *E. depressa*, *E. ventricosa magnifica*, *E. v. coccinea minor*, and *E. v. grandiflora*. Messrs. Caldwell & Sons, Knutsford, were second, having a good *E. Cavendishiana* and *E. tricolor*. Messrs. Cole & Sons obtained the remaining prize. For six plants Mr. John Rylance was first with good plants, but only moderately flowered.

Clematises.—In the opinion of many visitors, including some who have witnessed nearly every exhibition held by the Society, the Clematises contributed by the nurserymen formed the grandest and most remarkable feature that has distinguished any of the shows. The winning collection in the class for twenty plants from Messrs. G. Jackman & Son, Woking, contained some particularly beautiful plants, which were arranged on the bank near the entrance to the large marquee, the pots being tilted so that the specimens could be seen to the best advantage. One especial character possessed by these plants was the large number of flowers they bore, very evenly distributed, and all of great size. Beautiful as these appeared at the Royal Botanic Society's Show, Regent's Park, they had an even more suitable position at Manchester, the effect being correspondingly better. Some of the most telling varieties were *Gloire de St. Julien*, *Duchess of Edinburgh*, *Alba magna*, *Lady Constance Nevill*, *Robert Hanbury*, and *Mrs. Hope*, a certificate being awarded for the last-named, which has large, pale lavender blue flowers, the sepals broad, and the blooms circular in outline. Messrs. R. Smith & Co., Worcester, were adjudged second honours for praiseworthy plants of moderate size, well trained, and flowering fairly, but, occupying a less prominent position than the former, they did not produce

such a notable effect. *Sensation*, *Grand Duchess*, *Lord Nevill*, *Gloire de St. Julien*, *Victorine*, and *Frœbel* were the leading varieties. In the amateurs' class for six plants the only prize awarded was a first to Mr. Elphinstone, gardener to J. Heywood, Esq., Stretford, who staged small neat specimens, *Lucie Lemoine*, *Purpurea elegans*, and *Fairy Queen* being the best.

Amaryllises.—These were not very numerous, but Mr. B. S. Williams showed a fine collection in the nurserymen's class for twelve plants of excellent varieties, *Eclatante*, *Dr. Hogg*, *Dr. Morton*, *Magnifica*, *Mrs. Rawson*, *Mrs. Garfield*, *Prince Teck*, and *Marginata* being the leading varieties. This was the only collection in that class, and Mr. Hill gained the first place with the only collection of six *Amaryllises* in the amateurs' class, all seedlings, and some were very brightly coloured, the flowers large and of good form.

Roses were rather poorly represented in regard to numbers, the celebrated *Cheshunt* and *Slough* specimens that have been staged here in previous shows being greatly missed. Mr. Elphinstone had the best six Roses amongst the amateurs, healthy vigorous plants with good blooms. *Général Jacqueminot* and *Anna Alexieff* were fairly well flowered. Mr. Brockbank followed with smaller plants but healthy. *Yuccas*, *Calceolarias*, *Tree Ferns*, and *Palms* were also shown in good condition, the two latter chiefly by Mrs. E. Cole and Sons.

Pelargoniums.—These added greatly to the brightness of several portions of the Exhibition, but the plants generally were not of high quality nor very profusely flowered, though a few of the leading collections included some fairly good specimens. In the amateurs' classes the principal prizetakers with plants of moderate size were Mr. McGanz, gardener to J. G. Sumner, Esq., Park Hall, Hatfield, and Mr. Plant, gardener to R. P. Pill, Esq., Wood Hayes Hall; Mr. Foster, gardener to J. Kershaw, Esq., Holly House, Cheetham Hill, and Mr. Irvine, gardener to the Right Hon. Lord Howard, Glossop Hall. The nurserymen showed some rather better plants, the eight Show varieties from Mr. C. Rylance, Ormskirk, for which the leading prize was awarded in that class, being fresh even specimens; *Duchess of Edinburgh*, *Brigantine*, *Triomphe de St. Mandé*, *Prince Leopold*, and Mr. Bradshaw being the best varieties. Mr. Rylance also gained a prominent position with eight *Fancy Zonal* and *Tricolor* varieties, Messrs. T. Lazenby & Sons, York, following in nearly all the classes with healthy examples of good varieties.

Greenhouse Rhododendrons.—A class was provided for a group of these plants, but only one collection was staged—namely, by Messrs. Fisher, Son, & Sibray, Handsworth, who were awarded the first prize. The plants were all very healthy and well flowered in 6 or 8-inch pots, the varieties being *Taylori*, *Princess Royal*, *Jasminiflorum*, *Duchess of Connaught*, and *Princess Alexandra*.

Pitcher-plants.—In the nurserymen's class for ten Pitcher-plants Mr. B. S. Williams was the only exhibitor, and was awarded the first prize for a good selection of varieties, including the following:—*Nepenthes intermedia*, *N. Hookeriana*, *N. paradisa*, *N. Sedeni rubra*, *N. Courtii*, *N. Dominiana*, *N. Henryana*, *Sarracenia Chelsoni*, *S. purpurea*, and *Darlingtonia californica*. In the amateurs' class for ten plants Mr. J. Broome was the most successful exhibitor, taking the first position with well-grown specimens of *Nepenthes gracilis*, *N. Rafflesiana*, *N. ampullaris*, *N. robusta*, *Sarracenia Drummondii*, *S. variolalis*, *S. flava*, and *S. purpurea*, the last-named being particularly fine. Mr. J. Morton, gardener to J. Fildes, Esq., Chorlton-cum-Hardy, secured the second position, having neat examples of *N. rubra*, *N. Rafflesiana*, *Sarracenia rubra*, and *S. picta*.

New Plants.—Though no novelties were shown that had not been previously exhibited, chiefly at the meetings of the Royal Horticultural Society and the Royal Botanic Society's Shows during the past and present year, yet all the collections in competition were distinguished by their vigorous health, and in some instances considerable size, the characters being admirably developed. The principal class was that in the nurserymen's division for twelve plants, and as usual Mr. B. S. Williams, Upper Holloway, gained chief honours with excellent examples of *Croton Warreni*, *Alocasia Thibautiana*, *Anthurium Andreanum*, *Alsophila Rebeckæ*, *Anthurium Veitchii*, *Cycas intermedia*, *Adiantum Williamsi*, *Aralia spectabilis*, *Aralia Chabrieri*, *Kentia costata*, *Alocasia Chelsoni*, and *Dracaena Lindenii*. The second position was accorded to Messrs. R. P. Ker & Son, Aigburth, Liverpool, for a choice collection, including several examples similar to the above, but with the addition of *Ficus elastica variegata*, *Asparagus plumosus nanus*, *Dieffenbachia Leopoldi*, *Heliconia aurea striata*, and *Lomaria obtusata*. Mr. J. Cypher, Cheltenham, and Mr. W. J. Birkenhead, Sale, were awarded equal third prizes, the former with neat plants of *Macrozamia Fraseri*, *Anthurium Schertzerianum* *Hendersonii*, a very handsome variety with large deeply-coloured spathes; and *Davallia fijiensis* amongst others; while the latter had a very choice collection of Ferns comprising the following:—*Asplenium lunulatum brachyotus*, *A. rutæfolium*, *A. solidum*, *Pellaea andromedaefolia*, *Asplenium splendens*, *Pellaea Wrightiana*, *Blechnum corcovadense crispum*, *Gymnogramma hispida*, *Polystichum acrostichoides grandiceps*, and *Asplenium anisophyllum*.

In the amateurs' class for six new plants Mr. Osman was the only exhibitor, having well-grown specimens of *Cypripedium Lawrencianum*, *Cycas undulatus*, *Aralia spectabilis*, *Croton Warreni*, *Delabechia palustris*, and *Asparagus plumosus nanus*, with others of scarcely less merit.

Certificates were awarded to Mr. B. S. Williams for *Adiantum*

Lathomi, a pretty graceful Fern in the way of *A. concinnum*; *Stephanotis floribunda* (Elvaston variety), a distinct form, remarkable for producing its flowers very freely when in a small state; *Asparagus plumosus nanus*, a dwarf Fern-like plant with beautiful feathery leaves; *Azalea Miss Buist*, a form somewhat intermediate between the *A. indica* and *A. amœna* types, the flowers beautifully formed and pure white; *Doodia aspera multifida*, a dwarf Fern, with neat pinnate fronds divided or crested at the tips; and *Philangium elegantissimum*, a graceful plant with long narrow tapering variegated leaves.

Fine-foliage Plants.—In the class for eight fine-foliage plants Mr. Cypher was first with large healthy examples of *Latania borbonica*, *Kentia Fosteriana*, *Cocos Weddelliana*, *Cordyline indivisa*, and *Croton majesticus*, the latter well coloured and 6 feet through. Mrs. E. Cole & Sons were second with excellent specimens of *Pritchardia pacifica*, *Gleichenia Mendelii*, and *Croton Disraeli*. In the class for ten plants Mr. John Rylance was awarded the premier prize for fine plants of *Alocasia Lowii*, *Pritchardia pacifica*, *Croton Disraeli*, *Cycas revoluta*, *Cibotium Schiedii*, and *Areca lutescens*. Second, Mr. E. Elkin with good plants of *Cibotium regale*, *Latania borbonica*, and *Phormium tenax variegata*. R. B. Dodgson, Esq., took the third prize, and staged a fine *Cycas revoluta* and *Hyophorbe Verschaffeltii*.

Messrs. R. P. Ker & Sons, Aigburth, Liverpool, and Mr. James Cypher took the prizes in the order named in the open class for ten Crotons. The first-prize plants were splendid—well furnished and remarkably well coloured. The plant of *C. interruptus aureus* was a wonderful specimen, and the best of that useful variety that has ever been exhibited. *C. Hawkerii* was grand, as also were the plants of *C. Evansianus*, *C. Bergmani*, *C. Disraeli*, and *C. Prince of Wales*. For six plants Mr. Schloss took the lead with large and well-coloured specimens. R. B. Dodgson, Esq., followed with plants in fair condition.

In the open class for twelve *Dracœnas* Messrs. R. P. Ker & Sons again took the lead with grand examples of *D. Regina*, *jucunda*, *alba marginata*, *Gladstonei*, *amabilis*, *Hendersoni*, *ferrea*, and *pictus*. Mr. Henry James, Lower Norwood, was second, having good plants of *Mooreanus*, *Fraseri*, *Goldiana*, and *Shepherdii*. For six plants R. B. Dodgson, Esq., was first with plants fully 5 feet high and well furnished to the base, the best being *Baptisti*, *Excelsior*, *Berkleyi*, *amabilis*, and *Mooreanus*. Joseph Broome, Esq., was second, having *Thomsonii*, *Youngii*, and *Robinsoniana* good; third, Mr. W. Pratt, gardener to Lord Hill, Hawkstone. For four Palms Mr. Baillie, gardener to Earl of Wilton, Heaton Park, Manchester; Mr. J. Hill, and Mr. Irvine were the prizetakers as named. Mr. Baillie staging clean healthy plants of *Cocos pacifica*, *Cocos Weddelliana*, *Kentia Fosteriana*, and *Latania borbonica*.

Ferns.—These throughout were shown in excellent condition, and those staged by S. Schloss, Esq., in the class for eight stove or greenhouse kinds were marvels of cultivation, and were rightly awarded the first prize. The whole of the plants were from 7 to 8 feet through, and consisted of the following kinds:—*Davallia Mooreana*, *Gleichenia rupestris*, *G. speluncæ*, *G. Mendelii*, *G. flabellata*, *G. rupestris glauca*, and *Davallia tenuifolia*; *A. Birley*, Esq., Pendlebury (gardener, Mr. J. Hesketh), was a close second, and staged a good *Cyathea medullaris* and *Gleichenia speluncæ*. There were several entries in the class for six *Adiantums*. R. B. Dodgson, Esq., took the lead with splendid plants of *A. tenerum*, *Williamsi*, *concinnum latum*, *formosum*, *excisum*, and *cuneatum*. Mr. Broadman, gardener to G. Hodgkinson, Esq., Haigh Lane, Bowden, was a good second with fine examples of *farleyense*, *macrophyllum*, and *gracillimum*. Third, Mrs. Leech, Gorse Hall, Staleybridge, having a good plant of *amabilis* and *Veitchii*. J. G. Silkenstadt, Esq., Rose Bank, was awarded a fourth prize. For six Filmy Ferns Messrs. J. Rylance, The Grange, Stretford, and R. B. Dodgson were the prizetakers. In the former collection *Trichomanes radicans*, *Hymenophyllum demissum*, and *Todea superba* were good, while the plants in the latter were very creditable. Hardy Ferns were shown in good condition throughout. Mr. Robert, Tydesley, Hazelhurst, Worsley, took the lead with twelve plants, and staged good plants of *Athyrium F.-f. plumosum*, *Polystichum Wollastonii*, and *Osmunda regalis purpurea*; W. Brockbank, Esq., Didsbury, second with good *Polystichum angulare ramulosum*, *Athyrium F.-f. corymbiferum*, *A. F.-f. plumosum*, *A. F.-f. Craigii*, and *Lastrea Filix-mas ramosissima*. A. Birley, Esq., Wood Bank, third with good *Lastrea grandiceps* and *A. F.-f. Fieldiae*.

Groups.—In the large exhibition building the groups were a prominent feature, especially those in the amateurs' section, which were both numerous and tasteful. Mr. G. Smith, gardener to J. Rylands, Esq., Longford Hall, Stretford, obtained first honours for a large group containing well grown and healthy plants, some very good specimens, and arranged in a rather uncommon style, the larger plants forming a central ridge; *Anthurium crystallinum*, Palms, and *Bougainvilleas* predominating, on each side being hollows filled with Ferns, amongst which were scattered a few flowering plants to impart a little brightness to the whole. Mr. Elkin, gardener to T. Agnew, Esq., Eccles, followed with healthy floriferous plants, *Azaleas* being numerous and bright. Mr. C. Paul, gardener to J. Schloss, Esq., Bowden, and A. Hodgkinson, Esq., Bowdon, exhibited well, each having fresh tasteful groups, and taking the remaining prizes in that order. In the nurserymen's class it was a close contest between Messrs. R. P. Ker & Son and Mrs. E. Cole & Sons, but the former were successful in obtaining the chief place with a combina-

tion of Crotons, *Dracœnas*, Palms, *Rhododendrons*, *Anthuriums*, and *Gloxinias*, with Ferns in abundance. In the second-prize group the principal defect was a rather too noticeable thinness, though the plants were healthy and good.

The important groups of *Rhododendrons* from Messrs. John Waterer & Sons, Bagshot, deserve notice here, although they were not in competition, for they occupied an extensive portion of the permanent marquee, being planted out in beds at an opposite end to the Clematises, the central plant—a handsome specimen of *Perispicum*, with light pinkish mauve flowers in dense heads very freely produced—being one of the most noteworthy plants in the Exhibition. Decorator with rich rosy flowers, and Kate Waterer with very large deep rose flowers in beautifully formed heads, were other good and effective varieties.

Hardy Plants.—The collections staged for competition in the nurserymen's and amateurs' classes produced a beautiful display, forming one of the most important features of the Exhibition, and attracting almost as much admiration as the Orchids. In the nurserymen's class for eighty plants Mr. W. Brownhill, Sale, won leading honours with a beautiful selection of choice and handsome species and varieties, the specimens being mostly well grown and profusely flowered. A few of the best in such a large collection can only be briefly noted, the following being represented by good plants:—*Veronica gentianoides*, *Anbrietia græca*, *Dodecatheon alba*, *Saxifraga Wallacei*, *Opuntia Rafinesquiana*, *Verbascum phœniceum album*, *Geum coccineum fl.-pl.*, *Thalictrum aquilegifolium*, *Ajuga reptans*, *Myosotis Weirleigh Surprise*, *Dianthus hybridus*, *Iberis corifolia*, and *Veronica rupicola*. Messrs. J. Dickson & Son, Newton Nurseries, Chester, followed with a very similar collection, containing fewer large specimens, but numerous choice and rare plants. *Meconopsis nepalensis*, *Gnaphalium Leontopodium*, *Hesperis matronalis fl.-pl.*, *Saxifraga altissima*, *Campanula nobilis*, *Ourisia coccinea*, *Spiræa palmata*, and *Narcissus poeticus fl.-pl.* were particularly noteworthy.

Two collections were also staged in the amateurs' class for thirty-six plants, the principal honours being secured by Mr. T. Entwistle, gardener to Joseph Broome, Esq., Wood Lawn, Didsbury, for well-grown and carefully selected plants, which formed an attractive group at one end of the tent. In addition to the good condition of the plants the neat and accurately written labels were highly commendable, for too frequently considerable carelessness is displayed in this respect. Some of the most notable plants were *Lilium auratum* with thirteen flowers, a fine pan of *Sempervivum arachnoideum*, *Funkia ovata variegata*, and *F. Sieboldiana* flowering well, *Lychnis Haageana* with large richly coloured flowers, *Arenaria balearica*, *Saxifraga Wallacei*, *Delphinium nudicaule*, *Hesperis matronalis fl.-pl.*, *Spiræa Ulmaria fl.-pl.*, a fine specimen of a pretty plant; a large specimen of the double Poet's *Narcissus*, *Armeria cephalotes*, *Saxifraga granulata fl.-pl.*, *Saxifraga pyramidalis*, *Lamium longiflorum*, very pretty, *Onosma taurica*, in good condition; *Lychnis coronaria atrosanguinea*, and *Orchis maculata*. The second place was accorded to W. Brockbank, Esq., Brockhurst, Didsbury, who had smaller plants but mostly choice and healthy; *Ramondia pyrenaica*, *Cistus algarvensis*, *Saxifraga McNabiana*, *Onosma taurica*, and *Globularia trichosanthes* being a few of the best.

Violas and Pansies.—The contributions in the six classes devoted to these plants were numerous and good, most of them bearing abundant well-formed richly coloured flowers of choice varieties. The best amateurs' six Fancy varieties were shown by Mr. T. Entwistle, who had excellent specimens of John Curran, Mr. Felton, Thalia, and Wm. Melville, with others similarly good; Messrs. G. Whitfield, Bowdon, and J. Critchley, gardener to H. Joynson, Esq., Ashfield, Sale, were respectively second and third with vigorous but less floriferous specimens. Messrs. Whitfield, Critchley, and C. Sergeant secured the prizes for Show varieties in that order, most of the specimens being good examples of fine varieties. For twenty Fancy Pansies in 8-inch pots, three handsome collections were staged in the nurserymen's class, Mr. J. Walkden, Marsland Road, Sale, taking the lead with large profusely flowered specimens, amongst which Mrs. Birkmyre, Mrs. J. Watt, Mrs. Jamison, Thos. Grainger, Duchess of Edinburgh, Thalia, and Mrs. Felton; Mr. H. Hooper was second with plants finely flowered; and Mr. J. Hayward, Cheadle, took the third place. Mr. H. Hooper was again the leading exhibitor with twenty *Violas*, having a good selection in which *Holyrood*, *Magenta Queen*, *Forerunner*, *Countess of Pembroke*, and *Beauty* were particularly notable; Messrs. J. Hayward and Brownhill followed closely with similar plants.

Table Decorations and Bouquets.—In the class for dinner-table completely laid out for twelve persons, so as to show the best means of utilising fruits and flowers in its adornment, there were seven competitors, and they created an attractive feature to the Exhibition. Mr. Cypher received the premier honour, and his table was light and elegant. In the centre a plant of *Cocos Weddelliana*, with the base covered with *Selaginella* and Ferns lightly resting upon the cloth. Dotted amongst the *Selaginella* were *Cattleya*, *Masdevallia*, and other Orchid flowers, which were relieved with a few Fern fronds. Round this a number of horseshoe-shaped glasses were filled sparingly with *Dendrobium*, *Ixora*, and *Erica* flowers, intermixed with small fronds of *Adiantum cuneatum*. At each end of the table was a vase lightly filled with Orchids, Ferns, *Spiræa*, *Gloriosa*, and other flowers. Besides these were a dozen small specimen glasses filled with flowers, the fruit consisting of a Pine, Melon, Strawberries, Peaches, and

white and black Grapes. Miss Williams, Upper Holloway, London, was placed second, the centre being considered rather heavy and a little overbalanced with greenery, but on the whole was neat and attractive. Messrs. Jones & Sons, Shrewsbury, were third with a very light arrangement, but spoiled for the want of a little colour, too many light flowers being used. Mr. W. Bradshaw, Bolton, was placed fourth; this arrangement had more colour than the preceding, but was not so light. Equal fourth, Mr. James Mason, Manchester.

For three hand bouquets the last-named exhibitor was placed first with neat and well-arranged examples; Mr. J. Curtis, Richmond, second; and Messrs. Jones & Sons, Shrewsbury, third. In the amateurs' class for two bouquets Miss Johnson, Ascot, first; Mr. William

Plant, gardener to R. P. Gill, Esq., Woodheys Hall, second; and Mrs. Tambaci third.

Table Plants.—Useful and interesting classes in most large exhibitions are those appropriated to table plants, and at Manchester these were well represented. Mr. B. S. Williams gained chief honours in the nurserymen's class for twelve plants with neat handsome small specimens of suitable size for such purposes. The most graceful were *Dracæna gracilis*, *Croton Rodeckianus*, *Rhopala elegantissima*, *Pandanus Veitchii*, *Geonoma gracilis*, and *Croton Lady Zetland*. Messrs. Ker & Son and Cypher took the second and third prizes with similarly neat, fresh, little plants. In the amateurs' class for six plants Mr. Pratt, gardener to the Right Hon. Lord Hill, Hawkestone



Fig. 89.—*BARKERIA LINDLEYANA*. (See page 450.)

Park, Salop, gained the leading position with very beautiful specimens of *Dracæna gracilis*, *Aralia Veitchii*, *Geonoma gracilis*, *Pandanus Veitchii*, *Croton interruptus aureus*, and *Dracæna Ernesti*. Mr. Park, gardener to R. A. Farrington, Esq., Wigan, and Mr. Sherwin, gardener to M. Spark, Esq., Charlewood House, Huyton, followed very closely with satisfactory plants, healthy and well coloured.

Fruit.—The display of fruit was larger than in previous years, and of much better quality. In the class for eight dishes of fruit Mr. Miles, gardener to Earl of Carrington, was placed first with Black Hamburgh and Foster's Seedling Grapes, the former good, the latter scarcely ripe; Black Circassian Cherries, good; President Strawberries, fine; Golden Gem Melon, Stirling Castle Peach, Elruge Nectarines, well coloured and a fair size, and Brown Turkey Figs. Mr.

J. McIndoe, gardener to Sir Joseph W. Pease, Bart., Hutton Hall, Yorkshire, was a good second, the best dishes being McIndoe's Scarlet Premier Melon, Brown Turkey Figs, Bellegarde Peaches, Best of All Melon, and Lord Napier Nectarines very fine; Mr. Pratt being third, having good Hawkestone Seedling Melon and Hero of Lockinge, Grosse Monstrueuse de Lipari Figs, and good Grapes, but scarcely finished. Two bunches of black Grapes—first Mr. Loudon, with large bunches of Black Hamburgh, fine in the berry and well finished; it would have been impossible to have had them in much better condition even later in the season. Mr. Breese, gardener to Mrs. Ackers, Moreton Hall, Congleton, second, with well-finished bunches of the same variety, but not so large. For two bunches of white Grapes the last-named exhibitor was first with Duke of Buccleuch, good in

the berry, but not large in the bunch; Mr. F. Faulkner, gardener to F. R. Leyland, Esq., Wootton Hall, Liverpool, second with Foster's Seedling; and Mr. Miles third with the same variety. Mr. Wallis, Keele Hall, also exhibited Grapes new and old on the same stand, the latter being in a fresh state, with the footstalks quite green.

Mr. McGaw, gardener to F. G. Summers, Esq., Park Hall, Hayfield, was the only exhibitor for two Pines, and was awarded a first prize. For one Pine C. Bailey, Esq., Maindiff Court, first, Mr. McGaw and Mr. Miles obtaining the remaining prizes, each exhibitor staging fine fruits, with the pips swelled to a good size.

For twelve Strawberries in pots Mr. McGaw took the first award with President; Mr. J. Brown, Castle End, Kenilworth, followed with the same variety; Mr. Upjohn, gardener to the Earl of Ellesmere, the third prize. Mr. Faulkner also showed well in this class.

Miscellaneous.—The two largest of the groups not in competition were staged in the glass house containing the Orchids, forming a central bank. Mr. B. S. Williams had an extensive and beautiful collection comprising many choice Orchids and other plants. *Hydrangea paniculata grandiflora*, *Nepenthes*, *Amaryllises*, Ferns, and Azaleas were largely represented, several being certificated. The Liverpool Horticultural Company (Limited), Garston, also contributed a beautiful group of Crotons, Orchids, *Dracænas*, Ferns, and numerous specimens of *Pellionia Daveauana*. Messrs. F. W. & H. Stansfield, Sale, had a choice collection of remarkably healthy hardy Ferns. An extra prize was awarded to Mr. Elphinstone for a group of well-flowered Roses of moderate size but extremely healthy. Messrs. J. Standish & Co. had two pretty groups of Japanese Maples near the entrance to the glass house, the best being *sanguineum*, *palmatifidum*, *septemlobum*, and *dissectum ornatum*. Mr. J. F. Barter, Harrow Road, London, had some very fine Mushrooms and samples of spawn.

Implements were largely represented, considerable space being occupied with the exhibits by the following firms:—Messrs. Elliott, Alston, & Olney, 97, Deangate, Manchester, had a varied assortment of garden requirements, such as chairs, ladders, &c.; Leech Bros. and Hoyle, 20 and 22, Old Millgate, had a number of lawn mowers, rollers, barrows, and boilers; J. Bradford & Co., tents and ornamental vases; R. Halliday & Co., Middleton, greenhouses and frames; Foster and Pearson, Beeston, Notts, various glass erections; John Armitage and Son, ornamental pottery; Wright & Holmes, Moseley Road, Birmingham, greenhouses; David Lowe & Son, Manchester, chairs and houses; Henry Inman, Stretford, rustic chairs and arbours; J. G. Wagstaff, Dukinfield, boilers and heating apparatus; and John Swain, Hyde, patent boilers.

BARKERIA LINDLEYANA.

AMONGST autumn-flowering Orchids that represented in the accompanying woodcut (fig. 89, p. 449) deserves a prominent position, especially for culture in a cool house, where with the other members of the genus, such as *B. elegans*, *B. spectabilis*, and *B. Skinneri*, it thrives admirably if its few requirements are attended to judiciously. Free ventilation, abundance of water during growth, and a well-marked season of rest, when very little water is needed, are the chief points to which attention should be directed, and if proper care be afforded in these respects little difficulty will be experienced in obtaining good results. The plant succeeds best on a block, though it may be grown in a pot or shallow pan, but under the former system the most satisfactory results in regard to the production of flowers are attained. The blooms are of a rich purple-crimson hue with a little white in the lip, and they are produced in long spikes, rather less drooping than in some of the other species. At Messrs. Veitch & Sons' Chelsea nursery, amongst the numerous Orchids so well treated this was very fine last autumn, and from one of the plants there our figure was prepared.

FERTILISERS—THE SOLUBILITY OF MANURES.

MUCH that "B." has written at page 398 it is not necessary to discuss, but some points have been there raised that may be profitably considered. The first is the price of potash in the form of chloride or sulphate. The pure sulphate is decidedly dear, but, as found in a good sample of kainit, it is cheap, more especially when the other matters associated with it are valued at the price they command in the market by themselves. "B." does not seem to be aware of the fact that chloride of potash is, perhaps, more difficult to procure pure than almost any other artificial manure, and is certainly as liable to adulteration as is the nitrate, and possibly more so. Although a New York authority was quoted to show that chloride of potash had a tendency to produce inferior Potatoes, the same has been found to be the case in this country. Cameron, in the latest edition of Johnston's "Agricultural Chemistry," quotes Ferguson to show that sulphate of potash was superior to the chloride for that crop. On other plants the chloride has proved to have a more beneficial effect. A friend writes me to say that a slight sprinkling applied to his Celery just before earthing up gave results incomparably better than that portion not

so treated, though all were grown in very rich soil. On the continent it has been found to be especially suited to Buckwheat. Applied to Mangolds it has been found equal, but not perceptibly superior, to common salt. Your correspondent quotes Ville apparently with the view of discrediting him—a thing hardly necessary, for most of the propositions advanced by that chemist have been found to be not well founded. "B." could scarcely have damaged the authority on which he seems to rely more effectively than by quoting the unfortunate words Ville used to make farmers believe that all they had to do to keep the Potato disease at bay was to use plenty of potash. Surely all the world knows now that that is unmitigated nonsense.

"B." tells us that the liberal application of chloride of potash to Vines is in France attended with the very best results, and thinks this disproves the quotation from the New York pamphlet. It by no means follows. Manures as applied to Potatoes are placed where the roots at once find them, and at a season when, owing to the dryness of the soil, they are not so fully distributed through the soil as may be necessary to secure the change which takes place in salts when distributed through the soil. Potash by the New York authority is shown to be necessary for the formation of starch (and, of course, sugar), and chemists have shown that when chloride of potash is applied to soil and water passed through it the salt gives up its acid, which is washed out of the soil, the base alone remaining. From this it will be seen that the effects produced by a manure may vary very greatly, according as they may be applied, the season, or the rainfall. Should a soaking flood occur after the manure is applied in time to wash away the chlorine—the soil retaining the potash—the effect might be very different from what would occur were showers only sufficient to fairly moisten the soil to occur.

"B." thinks that my belief that plants themselves possess digestive powers tells greatly against what I wrote in my original article on fertilisers. If he will kindly refer to that article he will see that, though I recommended the sprinkling of manure heaps, and said that thereby the potash would be rendered soluble, a main object was to secure the retention of the ammonia that might otherwise be lost.

This question of solubility is rather a vexed and unsettled one. My studies have led me to this conclusion—that when solubility can be secured for nothing, or for a small outlay, it is well to secure it; when the process is likely to cost much it is not generally worth the outlay, because the soil very speedily causes soluble salt (potash salt, ammonia salt, phosphate, &c.) to become insoluble. They are, in fact, precipitated. On the other hand, well pulverised, properly distributed manures are very nearly as available as the others. In practice soluble phosphates have been found to give material assistance to the young plant, but those finely pulverised were equal to plants the roots of which had possession of the soil. As an agriculturist, then, I would hesitate before spending money merely to secure solubility, believing that the money would be spent to better purpose on a larger amount of fertilisers. Of course, were it thought desirable to have the full benefit returned by the first crop, or were the soil so poor that manure immediately available was necessary, or were artificials alone used, or it were the last year of the lease, my action might be different; but these are only exceptions to a general rule.

"B." asks if I ignore the action of acids and salts in rendering such matters as tribasic phosphate soluble. By no means, but I doubt if either are so plentiful in an ordinary well-drained soil as to produce all the effect ordinarily attributed to them. Solutions of common salt will render tribasic phosphate soluble, and it is supposed that the carbonic acid constantly produced by decaying organic matter is constantly dissolving out the otherwise unavailable mineral matter. It is in this way we believe that common salt fertilises soil. Chemists are coming to the conclusion that soda is not a necessary plant food. Still it often causes an increase of growth; not when first applied. True manures act in that way. Common salt, on the contrary, rather inclines to check growth, especially when applied in large quantities. It is, in fact, used for destroying vegetation, and this it effects. By-and-by heavy rains wash it clean away, and then the suppressed vegetation springs up with greater vigour than before. Some have thought that this proves salt to be a true plant food. The fact is, it acts as a solvent and sets free otherwise unavailable supplies. Applied to a piece of land, the land seizes the soda, setting the hydrochloric acid free. So long as this remains present in quantities sufficient to be noxious no growth takes place, but the acid meanwhile prepares food to be utilised when the first flooding rain shall have washed the acid away. Only on such a hypothesis can we explain how the weeds come up so much more strongly in walks some months after they have been salted, even in places so near the sea as "B.'s" place, where the rain is so charged with

salt as to more than supply the very small amount of salt plants may need.

While thus believing salts and acids to possess a solvent power, I think it will yet be shown that the roots of plants, whether by secreting acids or otherwise, possess a digestive power which enables them to avail themselves, to some extent at least, of the supplies within reach. Some years ago we potted an *Agapanthus* in soil which was known to be benefited by an application of lime. Among the soil was placed a piece of polished marble. Two years afterwards the ball of the plant was pulled to pieces and the marble examined. The smooth surface was now rough and covered with an engraved network, clearly showing where the roots had travelled. The *Agapanthus* was chosen because of the largeness of its roots. Whether it is a lime-loving plant I know not, but I am convinced that roots possess digestive powers. I have not used the chloride of potash in a way that can enable me to speak with confidence as to its effects in producing watery Potatoes or otherwise; but some years ago a manure guaranteed to contain so much soluble phosphate, so much nitrogen, and so much potash, the latter supplied with equal amounts of chloride and sulphate of potash, was used on the home farm here, and produced very splendid crops. Its use was discontinued, however, because the quality of the Potatoes was found to be inferior. At the time I was inclined to think the crops had been over-manured, and possibly they were, for the "artificial" was in addition to a good dressing of stableyard manure. Over-manuring almost always produces inferior Potatoes. Notwithstanding, I suspect the chloride of potash; for, even with very heavy manurings our Potatoes here are generally exceptionally good.—SINGLE-HANDED.

PRESENTATION TO MR. THOMAS MOORE, F.L.S.

WHEN it became known that Mr. Thomas Moore, who has been associated with the literary management of the *Gardener's Chronicle* for some twenty or more years, was about to retire from editorial responsibilities, his friends determined to mark the event by an expression of personal and public regard. The result was the formation of a committee comprising 110 persons, many of them intimate friends of Mr. Moore, others unacquainted with the man, but familiar with his labours, and more especially his important contributions to horticultural botany. The committee brought its agreeable labours to a close on Tuesday last at a dinner at the Cannon Street Hotel, Mr. Moore being the chief guest, and in the place of honour.

Dr. Masters, F.R.S., presided. There were present: Mr. William Paul, treasurer of the presentation fund; Mr. B. S. Williams of Holloway; Mr. William Bull of Chelsea; Mr. Charles and Mr. Harry Turner of Slough; Mr. George Paul of Cheshunt; Dr. Kellock of Stamford Hill; Mr. H. Cannell of Swanley; Mr. J. Cutbush of Highgate; Mr. G. Deal of Messrs. Weeks & Co., Chelsea; Mr. Peter Grieve of Bury St. Edmunds; Mr. W. Richards of the *Gardeners' Chronicle*; Mr. E. J. Beale of Messrs. Carter & Co., High Holborn; Mr. J. Tegg of Bearwood; Mr. J. Wills of South Kensington; Mr. W. Hinds of Dawlish; Mr. Forsyth Johnson of Alexandra Palace; Mr. Kelway of Langport; Mr. G. Jackman of Woking; Mr. G. S. V. Wills of Westminster College of Chemistry; Mr. John Cross of Burton Crescent; Mr. Charles Mitchell of Stoke Newington; Mr. Shirley Hibberd, secretary to the presentation fund; and others.

The usual loyal and patriotic toasts having been duly honoured, Mr. B. S. Williams proposed "The Prosperity of the Royal Horticultural and Royal Botanical Societies."

Dr. Kellock responded for the Royal Horticultural Society, and Mr. William Bull replied for the Royal Botanic Society.

Dr. Masters, the chairman, then proposed the toast of the evening, "The Health of Mr. Thomas Moore," which was received with great enthusiasm. The learned chairman said his "elder brother," Mr. Moore, has claims upon our sympathy, founded alike on his many years of hard literary work and his readiness at all times to assist a brother in distress or take charge of a great undertaking for the advancement of horticulture. Thirty years had passed since he first met Mr. Moore, and looking back he could say that he had never known him to change in his habits or sympathies. He was then, as now, devoted alike to the science he had done so much to advance and those human interests that so often brought him into contact with his friends when some good cause demanded a patient worker. Calling to mind the busy times of 1866, he remembered how assiduously Mr. Moore then applied himself to the organisation of horticultural energies, and how he then proved himself, as on many other occasions, a model secretary and a real man of business. As the curator of the Botanic Garden at Chelsea he was the official descendant of the great Philip Miller, whose mantle had certainly fallen upon him. It would be compensation for the retirement of Mr. Moore from the joint editorship of the *Gardeners' Chronicle* if he would now do as Miller did—prepare a gardener's dictionary, for such a book was wanted, and it would be no easy matter to find one so competent to the task as the present occupant of Miller's office at Chelsea. Mr. Moore possessed such an immensity of knowledge, he was accurate, and withal so kindly communicative of that knowledge, that it required somewhat of an

effort to regard him as a specialist. But then they all knew that he was above all things learned in Ferns, and his books upon that subject were of the greatest value and importance. As a judge of plants and flowers he made manifest another of his special acquisitions, for he was a thorough florist, and had produced what he (the chairman) believed to be the best code of judging flowers. He was both a maker of law and an administrator of law, and his decisions were never questioned. [Cheers.] Perhaps his qualities as a man were of more importance now that they had met to offer him a trifling compliment. It could never be forgotten that when there was a good deed to be done Thomas Moore was always ready to do it. The small gift he would now ask his friend to accept was no measure of their admiration and esteem. It was but the straw thrown up to show which way the wind was blowing, and assuredly it was a kindly wind that blew the straw, and he would ask Mr. Moore to accept it, not for what it was, for it was nothing, but for what it meant—for the good feeling it was intended to express, and the hearty wishes for Mr. Moore's health and happiness felt by them all. [Cheers.]

Dr. Masters then presented Mr. Moore with a silver salver and a purse. The salver bears the following inscription:—"Presented, with a purse of three hundred guineas, to Thomas Moore, Esq., F.L.S., F.R.H.S., &c., on his retirement from the joint editorship of the *Gardeners' Chronicle* newspaper, by friends who value his scientific labours and cherish remembrances of his constant devotion to social fellowship and pure philanthropy. May 23, 1882." The presentation was accompanied with musical honours.

Mr. Moore, on rising to return thanks, was greeted with prolonged cheers. He said he felt perplexed as to what he should say, for his friend the chairman had placed him in a difficulty by the warmth of his eulogy. One thing at least he could say, and it was that he fully appreciated the kind feeling that had prompted them to make this presentation, and he very heartily thanked the committee and the treasurer and others who had taken measures to afford him so much gratification. It was known to them all that he did not often speak in public, and if his words were few he was none the less conscious of the honour conferred upon him by the combined endeavours of his excellent friends. [Cheers.]—(*Gardeners' Magazine*.)

HELIOTROPE WHITE LADY.

FEW flowers during the winter are more appreciated than the deliciously fragrant blooms of *Heliotrope*. For decorative purposes in pots they are invaluable, and last moderately well when employed for room-decoration in light positions away from the gas. They have one serious defect, and that is their flowers last only a very short time when severed from the plant and placed in water. The above new variety after one year's experience of it will, I think, prove a valuable acquisition to the list of winter-flowering plants. It was sent out as having pure white flowers, but unfortunately they are not quite white, but slightly shaded with blue, whether grown in heat or under cool treatment. The flowers might more properly be described as clouded white instead of pure white. Notwithstanding this, however, I am inclined to think *White Lady* will become popular when well known. It is a free-flowering variety, and can be had in bloom over the greater portion of the year. Such is its character in a moderate degree of warmth during winter. It is rather sturdy and of compact habit, with bold light green foliage, and fortunately, unlike the older forms of *Heliotrope*, it does not appear to become weakly in heat. The corymbs of bloom are large from strong shoots, highly perfumed, and last much longer in a conservatory temperature while in flower than in more heat. After flowering if placed in heat it will in a very short time show flowers again. My stock is limited, as it is not a rapid grower; but I have formed a very high opinion of it, and intend to increase the number as much as possible for next winter's display. Those who have grown it might profitably say how it has behaved with them, and those that have not grown it might safely give it a trial, and I feel confident they will not be disappointed by so doing.—W. B.

ASPARAGUS PLUMOSUS.

AMONGST the many new and rare plants that have of late been introduced to our gardens, few, if any, have been more eagerly sought after, more highly prized and appreciated, than has the subject of this note. If I mistake not Kew must take the credit of introducing this valuable plant, and it is only one of many for which the horticultural world are indebted to Kew. I learn that it has been grown there for some years, but it is only lately that it has passed into the hands of the nurserymen, owing, no doubt, to the slow way in which it has hitherto been propagated, and that by division of the roots and seeds only. It was considered for a long time that they were the only means of propagating it. However, this is a fallacy; that it can and is propagated by cuttings has been proved beyond doubt, and any one who is in possession of a small frame with bottom heat can

readily increase this Asparagus. To propagate it from either of the former ways requires a little time before the plants are sufficiently large to divide, and on the other hand young plants do not produce seeds until they are a moderate size. When plants have become thoroughly established they flower and produce seeds freely, which in time ripen and readily germinate. My mode of propagating is very simple, and may be described thus. I select the cuttings from what may be termed half-ripened shoots, removing the small branchlets with a heel about 3 or 4 inches long and insert them in cocoa-nut fibre, which I have at the bottom of the propagating frame, sprinkle them with water, and keep the frame close till they have produced roots, which should be within four or five weeks. When rooted they should be placed singly in small 60-size pots, employing rich sandy soil for the purpose. They will soon advance, and in a short time the first sucker-like shoot will be noticed pushing through the soil, which develops into a feathery spray, succeeded as the plant grows older by stronger shoots.

Twelve months after the seed is sown, provided the young plants have had liberal treatment, neat specimens should be obtained suitable for table decoration. With me it has proved a very valuable plant for table and indoor decoration, the graceful dark green sprays and elegant habit render it much admired. It is even a rival for *Adiantum cuneatum*, for many as are the good qualities of that Fern, one of its great failings is that it will not last long in a cut state, whilst *Asparagus plumosus* lasts for a considerable time. I have had sprays of it in water for four or five weeks, with gas burning in the room every night, and at the expiration of that time the sprays were nearly as fresh as when first cut. For bouquets it is charming.

Asparagus plumosus is a native of the Cape, extending northwards to Natal, and may be described as a greenhouse plant. It thrives well either in a stove or greenhouse, the higher the temperature the more rapid and tender the growth; plants what have been grown in a greenhouse are slightly more sturdy than the others. When it becomes more popular no doubt some of our experimentalists will give it a fair trial to ascertain what value it is for bedding purposes. It appears to me to be a plant of rather strong constitution, and in the event of our changeable summers suiting, we may expect to see it tried outside at least in sub-tropical gardening.—W. K.

QUEEN WASPS.

I AM sorry to have been so hazy as to be misunderstood by "DUCKWING." I asked for his opinion of wasp economy. I meant, Will he kindly tell us what he believes to be the natural history of the common wasp? I gave a short sketch of it as I understand it, but his ideas and mine will not both fit the "economy" of the common wasp. I am a seeker after truth, and shall be grateful to "DUCKWING" for enlightening me.

"Further," "DUCKWING" begs me to explain this sentence—"I must agree with Mr. Taylor that every wasp appearing in spring is a fertilised queen, with the additional proviso that the smaller queens are probably unfertilised." I compared, or thought I had, the economy of the hive bee and that of the wasp, and taken in that way I apprehend it is perfectly intelligible to all who have considered bee economy. The queen bee that lays worker eggs is a fertilised queen; the queen bee that lays only drone eggs is a queen bee that has either escaped impregnation altogether or it has been deferred too long. I think I am stating this position correctly. I then mentioned that the smaller queens (wasps) were probably unfertilised queens that would become layers of drone eggs only, a point noted by M. Perrot, and that in this respect they probably resembled the queen bee that had escaped impregnation. As regards the bees I believe this is strictly accurate. As regards wasps I do not know that it has been proved. These smaller queens (wasps) do appear in spring. Later on in the autumn the newly-hatched queen wasps fly about and pair—say in September and October. These, or a portion of them, pass the winter in a dormant state, to appear in the spring as the queens—the future founders, as I believe, of the wasp colonies.

What we want to ascertain is this: Are there, say in the early part of May, any wasps at all except the queens that have escaped the winter frosts? I firmly believe there are no others whatsoever. If this is correct, then it follows that the spring queens flying about in the end of April and May are the parents of the worker wasps of July and August. Has "DUCKWING" ever taken a wasp's nest in, say, February and found living workers either grub or perfect in it? Again, is it probable that the warmth of April which is equal to the revivifying influence on the dormant queens, should be unequal to the same effect on the workers if there are any?

Even granting that this might be so, how is it that the worker wasps that appear earliest in the spring are so very small? There are no such small ones in the autumn, and no amount of cold or want of food can make the large workers of the autumn into the small workers of the spring. Personally, I cannot say that I have ever seen queen wasps in great numbers in September and October, but it must be remembered that in the autumn it is warm and the wasp tribe are in the height of activity; moreover, the reasons for the queens being in the air are altogether different from the spring—they are not in search of food, but bent on pleasure, and therefore far less likely to attract our attention.

I stated in my last that many other natural coincidences of weather have an influence on the number of nests. Rain, cold, &c., tend to kill the queens early in the spring. But according even to "DUCKWING'S" remarks, he allows that Mr. Taylor's figures prove "more queens fewer nests," but in this sentence it seems to me there is an important word omitted; it should read, "more queens killed, fewer nests." Then it seems to me that the year when only 408 queens were killed (the queens being possibly extra active that year, or Mr. Taylor's men more inactive in catching them), more escaped, and consequently 169 nests were found.

One word more. From careful watching of the last few years I am certain that the queens in spring affect certain localities, and that these localities are not necessarily the same in following years. Further, I am also quite certain that to see them in the spring a certain amount of education is necessary. One evening last year my man was at his hunting ground, a Hawthorn hedge extending a hundred yards or so; a friend of mine saw him, and, curiosity being excited, asked him what he was about. "Catching queen wasps," was his reply. "Oh!" said my friend, "I have seen no wasps at all this year." "There," replied my wasp-catcher; "stand aside a moment, and I'll soon show you whether there are no wasps this year;" and in a minute two or three were captured, much to the astonishment of my friend, whose eyes were then opened. I mention this simply to show that we must not consider the quantity of wasps seen, it is the quantity killed we have to consider.—Y. B. A. Z.

A WEEK IN BELGIUM.

[THE FIFTH DAY.]

THE railway system of Belgium is very complete, trains running frequently between the principal cities and towns. The speed is practically the same in both countries, and the carriage accommodation generally similar, but the cost of travelling is decidedly less there than here. An example will show this, and will show also that travelling is not so slow as is somewhat generally imagined. The distance from Antwerp to Brussels is about thirty miles, the time by express forty-five minutes, and the return first-class fare 6 francs, or 5s. This, however, is somewhat below the average, and it may be stated as a rule that second-class fares there are about equal to third-class charges at home. The traveller who, for certain reasons, does not desire to parade his linguistic attainments has only to name the place to which he is going, hold up one, two, or three fingers indicating the "class," and he will find the fare printed on the ticket which is promptly handed to him. This is very satisfactory, and if he cannot count the change he had better stay at home—not that there is the slightest fear that he will not receive his just due, but the decimal system is so simple that if it cannot be mastered in a day or two there must be something wrong with the calculating powers. The mixture of silver and nickel coinage may perplex for a moment, but the inexperienced traveller soon perceives the difference between the silver franc and half francs, and the white metal coins of the same size representing 10 and 5 centimes. As, however, the question of coinage is an important one for travellers it will be useful to allude to the subject with some precision. The same system is established in Belgium as in France, Italy, Switzerland, and the Grand Duchy of Luxembourg—namely, 1 franc = 100 centimes. There are gold pieces of forty, twenty, and ten francs. The Belgium gold contains 900 parts pure gold per 1000, while the English sovereign contains 917. This is the reason why our sovereign is worth a little more than 25 francs. The silver coinage comprises a few pieces value 20 centimes, but those most generally used are quarter-franc, half-franc, one-franc, two-franc, and five-franc pieces. There are also the white metal, nickel, coins above referred to, also copper pieces of two and one centime. Further, there is much French copper in the form of ten and five centimes, which are somewhat like our English penny and halfpenny; and it may also be noted that all the French, Italian, and Swiss coins, having the same value as Belgian coins, are all current in Belgium; but the Dutch coinage is not current in Belgium, as it is founded on a quite different system—namely, 1 guilder or florin divided in 100 cents is worth 2 francs and 11 centimes. I have only one more remark to add on this question, which is this—that as far as my experience goes, the English sovereign is current everywhere; so that notwithstanding the "depression," our credit as a nation remains good.

As an instance of the security of property in Belgium I may relate what may be termed a little umbrella experience. On a drenching night two Englishmen and four Belgians entered one of the large cafés in Antwerp. There might have been two hundred people in, and half as many umbrellas crowded in the stands at the doors. The umbrellas of the visitors were placed in the stands as if they were in the entrance halls of the owners. On inquiring if mistakes did not occur sometimes the reply was, "Seldom—never; they are quite safe." In accordance with custom I deposited my property, but must confess I "kept an eye on" the stand until I felt conscious, and somewhat ashamed, that I was the only person who did so, except, perhaps, my English friend. The persons as they departed examined the umbrellas with the greatest care, their own, when it was found, being subjected to a double scrutiny for the purpose of making sure the wrong article was not removed. I watched the process furtively for more than an hour, and the result satisfied me that everybody's property was safe. I had no fear after that night's experience of being otherwise than fairly treated in Belgium, and not once was wrong "change" tendered in any transaction. I state this in justice to the honest but thrifty people, and for the assurance of British gardeners who may be visiting the country for the first time.

There is such a disposition now-a-days to select what is grand for notice, and search for something startling, that trifles are apt to be overlooked; but these are not always devoid of significance, and many a good hint might be communicated to the world of gardeners—hints that might be of practical value to cultivators if they were not withheld; not because they are not good in themselves, but because they are "only trifles." Let no one, especially the young, disregard small matters—the numberless little items and simplicities, that if attended to will in the aggregate prove of great benefit to them in their education and calling. So much for trifles, and by way of excuse for the digression it may be stated as a fact that if the small things of life had been overlooked by the writer he would not have had any Belgian experience to relate.

To resume. Railways in Belgium, I have said, are conducted practically the same as in England; but there is a difference in one respect at least—there are separate first, second, and third carriages for females there. And now a "scene" and a warning. A few years ago I visited Belgium with as fine a representative of John Bull as ever crossed the sea. He was blunt and honest, with more money in his pocket than education in his head; a strong determined man, he had by hard labour hewed his way to prosperity, and had a keen relish for the comforts of life. Accompanied by the present Mr. Van Houtte we were at the Ghent railway station. Rushing up and down the platform looking for the "best carriage" my friend, overlooking the significance of the word "Dames," at length found what he wanted, and with a stentorian shout of "Here! Come in here, Wright, it's a beauty!" he rushed in. The Dames protested, but without avail. The guard was summoned, but the traveller kept his seat, showed his ticket, said there was plenty of room and he was a respectable man. The altercation grew louder, neither understanding the other, until it culminated in a dragging-out case, to the no small amusement of Mr. Van Houtte and myself, who allowed our friend to make the mistake. On the matter being explained the intruder bowed a humble apology to the ladies, gave the guard a franc and told him to learn English, as his "chitter" was "enough to drive a man mad." The words were, however, wasted, but the narration of the episode will not be if it deters any stranger to the land and language from entering a carriage reserved for Dames.

The comparative cheapness of travelling in Belgium is attributable to two causes—first, the lines passing through a nearly level district have not involved anything approaching the outlay necessary for constructing the "permanent way" in England; and secondly, nearly all the Belgian lines are the property of the State. There are some "private company" railways, but the mileage of these is decreasing yearly, the State purchasing the lines and improving them. On the State railways there are better stations, better carriages, better dressed officials, in fact the superiority in everything is strikingly apparent over the "company" lines; and further, the management is founded on the principle of giving the public all the advantages possible consistently with ensuring a moderate profit in the undertaking for contingencies. It is not, however, implied that the State railways of Belgium surpass our best English lines, for they do not; but, for the reasons stated, travelling is cheaper there than here, and it is certain that the State will eventually become the owner, and the sooner the better, of all the railways in Belgium.

There are three routes from Antwerp to Ghent, the shortest and shakiest—a regular rattlebones—being the Pays de Waes line, which traverses a very fertile district; the second *via* Malines and Brussels, a pleasant route; the third the "new line." This is really new, also pleasant, and as there are neither cuttings nor bridges, a good view of the country is obtained, and a glance can be had of the garden and farm crops, there being less grazing land than in the second mentioned district.

While, as is generally known, there are a far greater number of very small holdings in Belgium than in England, there are yet farms of a considerable size, and held on a system of tenure that would not at the present time commend itself to British farmers. The arrangement is very simple, and it would appear as if the owner had decidedly the best of the bargain, for the tenants covenant to find all the manure, all the labour, and all the seed, the landlord having half the

value of the products as rent. This system, however, only applies to some of the rich alluvial Wheat soils in the neighbourhood of Antwerp. The general rule is, the tenants take the land for three, six, or nine years at so much per year, but, as in England, it appears many of them cannot pay their rent in consequence of the depression of prices occasioned by the free importation of produce from America and other countries, and farm land is, I am informed on good authority, rapidly falling in value. But small holders greatly predominate in Belgium, the fields, or rather plains, as there are few fences, being apparently cut up into a vast number of allotments of a few acres each.

Most of the dwellings—plain cottages—have gardens attached, but as a rule these are neither so attractive nor so well cultivated as the home plots of British labourers—that is to say, flowers are evidently not so much cherished by the Belgian as by the English peasantry, and there is a greater variety and better vegetables here than there. Potatoes appear to be planted about 18 or 20 inches apart, not always in rows, and some of the plants have earth drawn around them, but not all. The growth was generally weak, and the produce necessarily small. Judging by the stocks in the markets and the dishes on tables of private families and in hotels, small tubers appear to be preferred. They are certainly much smaller than as used in England, but of excellent quality, especially a yellowish kind of superior flavour; the sandy alluvial soil is, however, no doubt conducive to high quality. Only a few varieties appear to be grown, and the breadths on the whole had a somewhat "worn-out" appearance. Very few Peas were seen in the gardens; very little Celery, and this very poor; Winter Greens, such as Savoys and Kale, small and late; few if any Brussels Sprouts visible; plenty of Turnips, plenty of Scarlet Runners, four sticks being inserted about 2 feet apart, the tops brought together and secured supporting the plants; little or no Rhubarb was seen, not many Onion beds, and although salads are an institution, neither Tomatoes nor Cucumbers appear to be grown in Belgium.

On the "farms" the cultivation was better, and there was a gratifying absence of weeds. More women than men were engaged on the land, several of them appearing as if searching for weeds amongst the Potatoes. The implements employed are not modern, but, on the contrary, the ploughs are rude, and the few animals were lean, while their drivers were not as a rule fat. Still, perhaps, they are contented. They are industrious and sober—virtues which make happy if humble homes. The system of Belgian husbandry would not answer in England any more than it does in Ireland, as, if allotments are so limited as only to afford a "living" in good years, the inevitable alternative follows of "hard lines"—semi-starvation and discontent in unfavourable seasons. In England, in some districts at least, the other extreme, relative to the size of farms, is apparent, and cultivators with sufficient capital cannot be found to stock them. As in other affairs of life, so in farming, the old mean between the two extremes is the safe course. But I arrive at Ghent—a city of canals and bridges, sweet chimes, gaunt gables, and a hundred nurseries. What I saw of some of the latter in eighteen hours I will tell another day.—J. WRIGHT.

[The publication of this article, which has been in type for some months, has been unavoidably postponed on account of the great demands on our space during the spring months.]

LATE PEARS.

YOU have many able writers about Pears, as I have seen by the correspondence some time ago. I feel sure some of them will be willing to assist me, as they have freely helped others. I am situated in one of the northern counties, and am anxious to obtain a supply of Pears if possible until the end of February or beginning of March. Can this be accomplished in the north by the aid of south walls? Glou Morceau in that position does well in some seasons and fairly well in others, but this is over by January. General Todleben certainly ripens a little later, but does not continue the supply long. Josephine de Malines is a good and delicious Pear in some localities, but is unsatisfactory with me on the Quinee stock; the fruit is small, and shrivels long before it is ripe. Bergamotte Esperen is very free, but can scarcely ever be sent to table in good condition. Beurié de Rance is only a second-rate Pear. Of Ne Plus Meuris I have not a fruiting tree against a south wall. Easter Beurié is very unsatisfactory, and I am inclined to think the northern counties are not warm enough for it.

It is not difficult to maintain a supply of good Pears until January, but after that date it is not so easy in this locality. No doubt some of your correspondents will know from experience varieties with which I am not acquainted that will succeed in Lancashire, and be in good condition to maintain the supply as long as I require.—LANCASTRIAN.

DOUBLE WALLFLOWERS.—We are informed that the double yellow Wallflower about which a correspondent inquired last week can be obtained from Swanley. We suspect this variety is by no means so scarce as the old double scarlet Wallflower that used to be a pro-

minent feature in cottage gardens, and it is this which a "THIRTY-YEARS SUBSCRIBER" is particularly anxious to procure.



KITCHEN GARDEN.

TENDER plants, if properly hardened by gradual exposure, will be in a fit state for planting out. For Vegetable Marrows a piece of ground fully exposed to the sun and sheltered from winds should be chosen, and if it does not abound with manure trenches should be taken out 2 or 3 feet wide, a spit deep, and filled with partially decayed manure, returning the soil over the manure, so as to form a ridge or mound. A distance of 6 feet should be allowed from centre to centre of the ridges, and the plants allowed a similar distance. Ridge Cucumbers do not require so much space; a couple of feet less distance between the ridges and plants will suffice. Handlights from early Cauliflowers will be available in private establishments for placing over the plants, and should be employed for a short period. Basil, Sweet Marjoram, and Summer Savory forwarded in heat may be planted on a warm sheltered border in rows about 15 inches apart. Capsicums, which do little good outdoors except in the southern parts of the kingdom, may be planted in a row at the base of a wall having a south aspect at a foot distance apart. Tomatoes delight in well-enriched soil. Two parts strong turfy loam and one part well-decomposed manure form a suitable compost. Mulching when in free growth with about 3 inches' thickness of short manure is essential to good results. In warm situations and against walls in the southern and midland counties this esteemed esculent ripens fairly well, but in more northerly and elevated situations the protection of glass is necessary.

HARDY FRUIT GARDEN.

An abundant crop of Gooseberries and Currants appears to have survived the frost and cold winds, and may now be considered safe. The bushes are also so far free from caterpillars and aphides, yet they should be frequently examined, and wherever the caterpillars appear the bushes should be dusted with fresh-ground hellebore powder on a calm evening or in the morning when the foliage is damp with dew. This (or using the powder in solution) is the best remedy for the caterpillar; and although the powder is of a poisonous nature, it is washed off by the first rains so as not to interfere with the use of the fruit for culinary purposes. It may, however, be advisable to wash the fruit taken from bushes that have been dusted with the powder before using them. Should aphides attack the plants promptly syringe with tobacco water, a gallon of juice being diluted with six times its bulk of rain water; or nicotine soap and Fir-tree oil insecticides are equally efficacious. Carefully examine the foliage of fruit trees, and destroy all caterpillars detected. Nut bushes are frequently damaged by caterpillars, and should now be examined.

With the fruit fairly set on Peach, Plum, and Cherry trees, particular attention should be paid to the trees, and upon the first appearance of aphides the trees should be well washed with the garden engine until the foliage is thoroughly cleansed, or should this not be effected by forcible syringings with the engine recourse must be had to diluted tobacco water or some insecticide. Disbudding Peach and Nectarine trees should be proceeded with at intervals so as to avoid any undue check to the trees. All strong foreright shoots should be removed from Plum trees, all side shoots not required for filling vacant space being stopped at the third or fourth leaf. Cherries may be treated similarly. Avoid overcrowding; the principal shoots or branches should not be nearer than 12 inches, and any long attenuated bare spurs may be shortened back to growths nearer the base. All shoots required for extension or filling vacant space should be nailed, tied, or laid in by means of twigs as may be deemed expedient, allowing sufficient space in the shreds or ties for the swelling of the shoots, as any undue pressure is a prolific cause of gum and canker.

Disbud and regulate the shoots of Vines trained to walls, avoiding overcrowding the growths, and should any indications of mildew appear dust at once with flowers of sulphur. If the soil of the borders in which fruit trees are growing be dry they should receive a thorough watering with rain water, or if spring water be employed it must be exposed to the atmosphere for a few sunny days. After watering mulch with a few inches of short manure. Weakly trees may be assisted with weak liquid manure, and this aid in watering, mulching, and liquid manure will assist the trees to swell the fruit in the early stages of growth. Recently transplanted fruit trees should be well supplied with watering, mulching over the roots with 2 or 3 inches depth of short manure, and if the appearance be objected to the manure may be covered lightly with the lawn mowings.

Plantations of Strawberries should, if not already done, be well mulched with littery manure between the rows and plants, or where straw cut into lengths of about an inch is obtainable it is preferable, from its sharp edges being obnoxious to slugs. Should dry weather prevail copious waterings must be given, pouring it on the mulching material between the rows and plants. Strawberry plants which have been forced may be planted in the open borders 18 inches apart in rows 2 feet asunder, firming the soil well, and supply water freely until they are established. Kept free from weeds and runners through the summer these plants never fail to produce an abundant crop the following season, after which they may be destroyed.

FRUIT HOUSES.

Vines.—Fine weather whilst bringing Grapes forward is equally favourable to red spider—the most formidable insect enemy the horticulturist has to encounter under glass. There is no doubt that syringing is the best preventive as well as the safest remedy. Unless the water be soft and perfectly clear its employment leaves a sediment or incrustation on the berries; therefore few, if indeed any, of our best cultivators syringe the foliage after the fruit is set or thinned, depending afterwards for atmospheric moisture upon damping the borders and paths, with proper supplies of water to the roots. It is, however, worthy of note that most growers are agreed that a liberal use of the syringe is desirable after closing the house, and the dispensing whenever practicable with fire heat as much as possible. It has also been proved that an atmosphere charged with ammonia is inimical to red spider, and at the same time beneficial to the Vines; hence some damp the house with guano water or liquid manure at closing time, or sprinkle a little guano on the borders and wash it in. Others give a mulching of decayed manure, which evolves ammonia, whilst some give a thin dressing occasionally of short horse dung. The border, after the berries are thinned, should be examined at least once a week, and whenever necessary a thorough supply of water not less in temperature than the mean of the house should be given. If liquid manure be needed, as it always is when the Vines have a full crop and not unduly vigorous, it should be given weak and tepid, and in such quantity as to percolate through the soil to the drainage. Although outside borders do not as a rule require water when the rainfall is equal to 2 inches per month during the growth of the Vines, yet taking into account the very limited rainfall of the present season, and in light soils or well-constructed and properly drained borders, and the Vines having a number of healthy feeders, a good supply of tepid liquid manure will greatly assist Vines swelling off heavy crops of Grapes.

Newly planted Vines will now be rooting freely in the soil, and should be encouraged to make free growth by closing early in the afternoon with plenty of atmospheric moisture. Attend to stopping and tying laterals, allowing as much, but no more, foliage than will have full exposure to light, and when this is effected keep the laterals closely pinched. Thin freely the berries of all kinds that have to keep through the winter months, and avoid overcropping as the greatest of evils. Late Vines generally will now be about coming into flower, and to insure a good set maintain a night temperature of 70°, and shake the rods several times a day, which will distribute the pollen, or in the case of shy-setting kinds its distribution should be aided by the use of a camel's-hair brush. Whilst in blossom pinching or stopping the laterals should be discontinued,

but as soon as the fruit is set attend to this matter, as it is highly injurious to allow crowded growths and afterwards be compelled to remove them in large quantity. Keep houses of ripe fruit cool and airy, and do not allow the border or atmosphere to become so dry as to affect the foliage injuriously. A moderate amount of moisture at this season does not injure the Grapes. Very little fire heat is necessary now if the houses are closed early, as with sun heat and plenty of atmospheric moisture the temperature may rise to 95°. Ventilate very early in the morning, or scorching will ensue.

Vines struck from eyes in February, and grown in pots or turves, may now be planted, giving a soaking with water at a temperature of 100°, and mulch the surface of the border with a couple of inches depth of short manure. Maintain a humid atmosphere, and shade during bright sunshine till the Vines are established.

Melons.—Support by means of tables must be given to fruits which are becoming heavy and are hanging beneath a trellis. Fruits ripening must have a circulation of warm rather dry air secured to them, no more water being given at the roots than will prevent the foliage flagging. It is a practice with most growers to take a second and even a third crop of fruit from the same plants, in which case the plants should as soon as the fruit is cut have copious supplies of water at the roots, and a moist genial atmosphere secured by syringing at closing time, and damping available surfaces in the house. Some of the surface soil of the bed should be scraped off, and fresh lumpy loam supplied, pressed down tightly. The old growths should also be well thinned and fresh young growths trained in their places. When, however, the plants are much enfeebled through carrying the first crop, or have become infested with red spider, they should be removed, and a fresh start made with young healthy plants. It is essential that the house be thoroughly cleansed, and fresh compost introduced. Fertilise the pistillate blossoms on succession plants as they expand, maintaining a drier and higher temperature till the fruits begin swelling, being careful not to allow one or two fruits on a plant to take the lead of the others. When the fruits are swelling off earth up the roots, using good lumpy loam pressed down firmly, supplying water liberally, and when the roots have possession of the fresh compost weak liquid manure will be beneficial. Syringe moderately early on sunny afternoons, and ventilate freely on all favourable occasions, especially in the early part of the day. Close early, but do not allow the temperature to rise above 90° or 95°. It is well on fine days after closing and damping the house to ventilate slightly in about half an hour, and with the temperature falling to 85°.

Cherry House.—The earliest fruit is now perfectly ripe, and when the whole crop is in that condition the chief object will be to prolong the season of supply and to preserve them fresh and plump. It will not be necessary to shade, unless the foliage is scant or the position of the trellis expose the fruit to the direct rays of the sun. A free circulation of air should constantly prevail in the house, and during hot weather the borders should be damped occasionally. Moisture must not be lacking at the roots, for any deficiency now may impair the development of the buds for next season, and for weakly trees supply diluted liquid manure. Trees in pots will require daily attention in watering, and should be continued under glass until the buds are well formed, when they may be removed outdoors where they will enjoy every ray of sun, standing the pots on a bed of ashes. When the fruit is gathered recommence syringing the trees.

FLOWER GARDEN.

With a change in the weather the planting-out of the hardier kinds of plants has been general, such as Verbenas, Calceolarias, Petunias, Echeverias, Lobelias, &c., with the hardiest Pelargoniums. Alternantheras, Coleuses, Iresines, and subtropical plants may now be placed out. Asters, Stocks, Phlox Drummondii, and other half-hardy annuals are ready to be transplanted, selecting a dull day for the operation; and for protection against slugs, as soon as planted dust around each plant or batch with soot or quicklime. Roses do not grow freely as yet, and are becoming infested with aphides, which should be destroyed by well syringing with tobacco water—one gallon of juice diluted with eight of water, to which has been added a pound of soft soap. Train climbing Roses, and if the soil is at all dry supply water or liquid manure copiously. Cleanse the foliage by syringing frequently, or apply an insecticide. Clematis and climbers generally should be

attended to in training and regulating the growths. Box edgings may now be cut and trimmed, choosing a moist dull time for the purpose, as if done in bright sunny weather they will present the appearance of having been scorched. Weeding, sweeping, rolling, and mowing must be regularly attended to.

THE BEE-KEEPER.

UNSETTLED POINTS IN BEE HISTORY.

COMB-BUILDING.

MANY habits of bees have not been investigated, many are misunderstood, and many statements made by writers on bees are neither self-evident nor sufficiently supported by experiments or well-known facts. Some writers may have evidence to convince them that their opinions or conclusions are correct, though, when stated, these are not satisfactory enough for others. Often have I asked bee-keepers to read Nature themselves and to be guided by common sense and common intelligence in their reception of the evidence of others.

Touching some disputed points much can be said on both sides, and on questions of this kind honest people halt between two opinions till clearer light or the evidence of fact guides them aright. Are the cells of bee combs originally hexagonal in shape? What? Do you not know that this question has been settled from time immemorial by naturalists and apiarians, that cells are originally and naturally hexagonal, and that no other shape would compass their end or use so well and economically? We all know what has been so often said about the wisdom and economy of bees in adopting the hexagonal shape in the manufacture of combs. Still, by some thoughtful naturalists the hexagonal shape of cells is considered more accidental than natural, and results rather from mechanical than instinctive causes. In a work called "The Honey Bee: Its Natural History, Habits, Anatomy, and Microscopical Beauties," by James Samuelson, assisted by J. Braxton Hicks, M.D., F.L.S., &c., and published by John Van Voorst, London, I find this subject of cell shape and formation fully discussed; and as it may interest some of the readers of the *Journal of Horticulture* I will here quote from this book part of the discussion. At page 80 they say—

"We are now considering what was until recently regarded as the most wonderful trait in the nature of the bee, for almost miraculous power has been attributed to the insect to enable it to construct these cells. It has been proved by able mathematicians that the form they are made to assume requires the least amount of material consistent with strength, and that if any other figure had been substituted for the hexagon, or any other angles than those now presented by the sides of the cells, it would not have been possible to group so great a number of the latter in the same space; for we are told that although circular cells might have better suited the shape of the bee's body, yet the waste of space and material would in that case have been considerable. On the other hand, however, it has been stated that the design of these cells is not at first hexagonal, but according to some observers it is pentagonal, whilst others declare it is circular in the first instance. All agree, however, that as the cells progress they assume the most appropriate and economical form—namely, the hexagon."

Our authors then give numerous surmises as to the guiding principle that causes the bees to construct their cells after this model, which they review at considerable length, and then say—

"You will be disposed to ask, Which of these theories, apparently so much at variance, is the correct one? We should be glad if we could answer this question finally and satisfactorily, but that we cannot do; and indeed if such observers as Reaumur, Spence, Darwin, and Tegetmeier, all of whom have carefully watched the habits of the insect, cannot agree upon the subject, it is hardly to be expected that we should decide the controversy. It is, however, our business to compare these theories; and a little reflection free from bias or prejudice, aided by the consideration of other natural objects and phenomena, may perhaps lead us to some useful conclusion on the subject.

"First, then, all the naturalists whose opinion we have quoted agree that the design of the cells is originally hexagonal, but that, with the exception of certain cells at the side of the comb and around the queen cell, they eventually become so. Next, they agree with mathematicians that, after the circle, this form of cell encloses the largest space with the smallest amount of material; and everyone is acquainted with the extreme tenuity of the cell walls of the honeycomb. Now the real question is, Are these cells normally cylindrical, and do they of necessity resolve themselves into hexagons when the neighbouring ones are built up against them? Or do the bees begin by making them irregularly pentagonal and cause them gradually to

assume the hexagonal shape as they progress? In describing the eye of the bee we showed that where a number of circles or spheres are developed in close contact they resolve themselves into perfect hexagons. Turning to other natural objects, we observe in the tissue of plants, that when the circular cells become differentiated and take the form of tubes growing together with the neighbouring vessels of similar shape, they assume the hexagonal type, and their structure then greatly resembles the honeycomb. This we find exemplified not only in the higher plants and animals, but also most beautifully in some of those mysterious forms the Diatomaceæ, where the siliceous cases present the perfect honeycomb structure. Again, mathematicians of undoubted ability tell us that the hexagonal cells of honeycomb exhibit precisely the form that would result from close contact and adhesion of a number of circular or cylindrical bodies of a soft flexible substance; and lastly, an examination of honeycomb shows us that where a cell is terminal—that is to say, where another is not added to it at the terminal side—it is not hexagonal, but irregularly round.

"Now it certainly appears to us to be going a little out of our way if we seek to attribute the hexagonal shape of these cells to the result of an instinct in the bee that transcends the calculating powers of the ablest mathematicians, when we find by accumulated evidence that the natural form assumed by a series of circles when brought into close contact would be that of the cells of a honeycomb. Looking, then, at the foregoing circumstance, and considering also that all animals construct tubular or circular habitations, we should be disposed to agree with those naturalists who regard the hive cells as normally cylindrical; and certainly the mathematical precision with which they appear to be framed inclines us to attribute the hexagonal form to mechanical rather than to instinctive causes."

Owing to the length of the above quotations I must reserve my notice of other unsettled questions for another letter.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

Anthony Cullen, Gresham Road, Staines.—*List of Bedding Plants.*
E. Wilson, Serpell, Plymouth.—*List of Bedding and Greenhouse Plants.*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—Several letters of inquiry which reached us by Wednesday morning's post cannot be answered until next week.

Pink Lily of the Valley (*M. D.*).—We know there is a form of this popular favourite that produces pink flowers, and they are as fragrant as those of the type; but whether the pink Lily is plentiful or not we do not know, but suspect it is rather scarce, nor do we know where plants can be purchased. Perhaps some of our readers may know more about the variety than we do, and can give information respecting it.

African Tortoise (*Testudo*).—We are glad to learn that our remarks proved of service to you, and to hear that the tortoise is such a favourite in your house and garden. It will no doubt eat Lettuces and probably nibble at some flowers, but will not do any material injury. We are glad to receive your letter, but the pressure on our columns is so great just now that we have no available space for its insertion.

Making Rockeries (*A. W. P.*).—We are not aware that there is any work published on this subject. On page 349 of our issue of October 20th, 1881, Mr. Wolley Dod described in concise terms how he had made a rockery that gave him great satisfaction. The subject is briefly alluded to on pages 170 and 172 of our "Garden Manual," and suitable lists of Ferns and alpine plants are given. This work (1s. 9d. post free), is probably in your library, and it contains much that is useful for amateurs.

Insects on Apple Trees (*F. J. R.*).—We are unable to say what the insect is that is doing the damage without seeing it; but whatever it is, if you syringe the trees forcibly, taking care that no portions are missed, with the hellebore and quassia mixture recommended to another correspondent, it will destroy the insects and not injure the fruit.

Jasminum hirsutum (*W. W.*).—The plant we figured was described by Willdenow and Smith, and in the "Hortus Kewensis." It is not synonymous with *J. pubescens* of Roxburgh, which you will find figured in Rheede's "Hortus Indicus Malabaricus." It has more pointed petals, approaching

J. gracillimum shown some time since by Messrs. Veitch & Sons of Chelsea. Indeed the latter was at first mistaken for the true *J. pubescens*. We inadvertently omitted to say that the name of the plant of which you sent a spray was *Abutilon vexillarium*.

Destroying Gooseberry Caterpillars (*G. H. S.*).—A correspondent, "G. O. S.," has strongly recommended the following as the best mode, and perfectly safe, of destroying this destructive pest:—Put 4 ozs. white hellebore powder and 2 ozs. of quassia chips into a two-gallon stone bottle, fill it with boiling water, shake it well, and allow it to become cold. Pour some of the contents into a basin or bucket, and with an old whitewash brush sprinkle it over the bushes, holding up the lower branches with a stick; dash some of the liquid on to the under side of the leaves. It is efficacious, not only for Gooseberry trees, but also for Currants, Raspberries, and Rose-tree pests. Mr. Taylor of Longleat has found fir-tree oil, half a pint dissolved in four gallons of soft water, completely efficacious in destroying caterpillars and most other insects. It is important that soft water be used; failures have occurred and even injury ensued to tender foliage when hard water has been used.

Pyrethrums for Towns (*Citizen*).—There are few, if any, better plants for town and city gardens than double and single Pyrethrums. We have observed them growing and flowering with great freedom where many other flowers had to struggle for existence by the want of a sufficiency of pure air. Pyrethrums pass the winter without protection, and are not eaten so voraciously as many other plants are by snails and slugs; still they need protection from these nocturnal depredators. Without knowing how many plants you require we cannot usefully submit a list of varieties. If you do not possess any plants you will obtain a better return for your money by ordering the number you require from a nurseryman or florist, leaving the selection to him. You will then procure good plants and good varieties.

Dionæa muscipula Culture (*S. Lum.*).—This curious little plant requires a warm greenhouse. Chopped sphagnum and fibrous rough peat in equal parts, with a fourth of silver sand, and pots broken rather small, the plant potted rather high in the centre of a 4½ or 6-inch pot half filled with drainage, and the pot placed in one of larger size, the interval filled with sphagnum, and this stood in a saucer of water, covering the plant with a bellglass but not resting on the moss all round, raising it a little on one side, and taking off and wiping dry occasionally. Position light, but shaded from direct sun. The saucer to be kept full of water, lessening it in winter. Seeds give the healthiest plants. They may be sown in a pot prepared as for the plant. Leaves laid in damp moss covered with a bellglass will occasionally emit a young plant.

Black Currants Failing (*W. S.*).—The growths you have sent indicate that your bushes are in a very weak and debilitated state. They have made an attempt to grow, but have failed from exhaustion. If you prune them severely, cutting them partially down, and enrich the soil with farmyard manure, or by copious applications of liquid manure, they will be invigorated, and produce strong growths totally different from those before us. You had better also obtain some young trees, not raising them from the enfeebled bushes that now refuse to grow. Cut them down at once. It is no use leaving them in their present condition. Such wood can never be made healthy, but new growths may be induced. Had you stated the age and size of the bushes we could have given you more explicit directions for cutting them down.

Diplacus glutinosus (*Violet*).—The above is the name of the plant about which you seek information; it is a greenhouse evergreen shrub, and was introduced from California in 1794. It is of easy culture. Cuttings inserted in sandy soil in spring, covered with a bellglass and placed in a close heated frame, strike readily. The after treatment of the plants may be the same as you would give for Fuchsias, and the soil may be the same—namely, half turfy loam, and the remaining half peat and leaf soil, with a little sand added. Give larger pots as required, stop the growths to insure a bushy habit, and in due time the plants will produce their orange-scarlet flowers freely. When the plants are large they may have stronger soil and be stood outdoors on ashes in the summer, watering them freely. In the winter they should have a light position in a well-ventilated greenhouse, keeping the soil rather dry. After the plants have flowered in May or June they need some pruning to keep them bushy, and shortly afterwards when the young growths that issue after the pruning are an inch long is the time for repotting or top-dressing as may be needed.

Melons not Swelling (*W.*).—It does not follow that all the fruits, the flowers of which were fertilised on the same day, will swell with equal rapidity. Some will often get in advance of others, and thus appropriate the sap at the expense of the smaller fruits, which fail by lack of adequate support. The fertilisation, too, of all flowers is not alike effectually performed, though they may have received the same treatment, owing to a difference in the state of the organs of fructification not the less important if not visible to the naked eye. Much depends, too, on the position of the fruits as regards their swelling or failing to swell; but while this difference is not easy to explain, it is not difficult for an experienced eye to detect on a close examination of the plants. The stopping of the growths of Melons so as to effect an equal distribution of sap over the plants is important towards securing a regular crop.

Neglected Garden (*J. K. R.*).—We are very willing to help you, but it is most difficult to understand a case of this kind. Root-pruning old trees, for instance, might do more harm than good, everything depends on their condition. Neither can we determine how far it would be wise to burn all the old Gooseberry and Currant bushes. If they are very weak and wild, and the ground is further infested with such deep-rooting perennial weeds as couch grass, Dock, and Thistles, it would probably be advisable to carry out your project. We should not trench the ground two spades deep now, but should fork it over as deep as is needed, and carefully shake out the weeds, casting them on the surface. In a short time they will wither, and can then be collected and burned. If the ground is very full of such weeds as we have named it may be advisable after burning the rubbish to fork it over once more, proceeding in an opposite direction; you would then get it tolerably clean, and the thorough working that the soil would undergo would increase its fertility. As you do not indicate the nature of the soil, whether it is light and dry or strong and wet, we are not in a position to judge as to how far lime is needed; if rather strong a dressing at the rate of 50 bushels per acre would probably be beneficial. It is no use giving a light dressing for killing grubs, and if the land is of a dry character we should add 20 bushels of salt to the 50 of lime; if wet we should omit the salt and probably use twice the quantity of lime, but this would depend on circumstances. Gas-lime used fresh is excellent for destroying predatory vermin, and it may be applied to ground that is not to be cropped for some months at the rate of 30 bushels per acre, but not over the roots of fruit trees. It should be spread and forked in at once, or its insect-killing power will be dissipated if the lime be long exposed on the surface. Gas-lime must not be used at anything like the strength named just before the ground is cropped. Such trees

as you retain will probably need pruning, and they may be cleansed from moss by scrubbing the stems with brine or limewashing them. The small branches can be dusted with quicklime when thoroughly wet, as they often are during damp foggy weather. This is winter work. Get a ladder, use the lime freely—liberally; that which adheres will kill the moss, that falling to the ground will improve it. If the work is well done the trees when dry will appear as if covered with snow. If the Raspberry suckers have been long in the Asparagus bed you will find it difficult to extirpate them. Pulling them up as fast as they appear, and the moment they are visible, at the same time dressing the beds two or three times during the season with salt at the rate of 2 or 3 ozs. per square yard, is the only remedy we can suggest. In the meantime make new beds, and plant young Asparagus crowns in late spring. For destroying the trees growing on the top of the walls saw them off close to the masonry and dress the stumps with sulphuric acid. We should plant the ground next year with Scotch Champion Potatoes; this would no doubt yield abundantly on fresh soil treated as we have recommended, and you would have few weeds after digging them in the autumn. We have given the best attention we could to your letter, and trust the suggestions now recorded may be useful. You are quite at liberty to write to us again if you need further information, and can enable us to comprehend your case sufficiently for the purpose of replying satisfactorily.

Various (F. C.).—1, The Apple leaf arrived in such a dry and withered state that it is impossible for us to judge of its condition when gathered from the tree, and consequently we are quite unable to form an opinion on the matter on which you seek information. 2, This is a difficult case. Sudden deaths occasionally happen both in the vegetable and animal kingdom, the causes of which are most obscure, and apparently impossible to determine. You are yourself such a close observer, that if there was any fault in the junction of the scion with the stock you must have seen it. We assume, therefore, the fault is not there, and can only suggest that the stock was injured in its young state by severe frost. We know many stocks sustained damage by the intense frost that occurred in 1879 and 1880, but the trees did not succumb until long afterwards, and it is quite possible that this is a case in point; at any rate we cannot suggest any other solution of the mystery. 3, The plant having a bulb like an Onion, and of which a rough sketch is sent, is probably *Ornithogalum longibracteatum*, a Liliaceous plant introduced from the Cape of Good Hope about sixty years ago. Remove the side bulbs. Do not overpot the plant. If the pot is full of roots, as it should be, and well drained, apply water copiously, giving weak liquid manure occasionally if needed to promote active and early growth in a very light position in a warm greenhouse. Withhold water about the middle of August, and place the plant on a shelf in a house where it can receive the full sun and have a hot and dry autumn, keeping it cool and dry in winter. By adopting this treatment and maintaining the plant in good health it will flower several times before the period you name, and may possibly produce a spike next year. 4, Defective root-action, or a check resulting from removing the plant from a moist to a dry atmosphere, will produce a change of colour in *Pelargonium* leaves; it is somewhat similar to the autumn tints on the foliage of trees which occur on the partial cessation of growth. Turn the plant out of the pot and you will probably find the roots are not white and fleshy, and in that case we should remove a third of the soil, more or less, and repot probably in a smaller pot in fresh loam containing a third of leaf soil or wood ashes, and a sprinkling of sand. 5, Clip off the shoots to half their length or more with a pair of scissors; remove about half the soil from the roots and plant out in good soil and a warm position in the garden, sprinkling the plant frequently in dry weather, and take it up and pot in September. Or you may repot now in a smaller pot than before, placing the plant in a frame. *Solanums* do not lose all their leaves if the plants have not been neglected or subjected to some unsound treatment. Planting out in your case would probably be the simplest remedy. 6, Stand the *Pelargoniums* in a sunny position in the open air when the flowers have faded. These remove to prevent the formation of seed. Give little water, only a sprinkling occasionally to prevent the leaves falling too quickly. When the wood is hard and brown cut the plants down, leaving only half an inch of each shoot. Sprinkle again a little more freely, and when fresh growths are half an inch long shake nearly all the soil from the roots, pruning these rather closely, and place in a smaller pot and grow in a frame, applying water regularly, yet thoughtfully, to encourage healthy growth. Soil composed of two-thirds fresh loam, the remaining third equal parts of leaf soil and wood ashes, with a sixth part of sand, is suitable both for *Pelargoniums* and *Solanums*. You would find our "Greenhouse Manual" useful, price 10d. post free. We perceive we have omitted to reply to your question about the *Rose*. Remove all the Briar shoots now, and shorten the wood to the bud you desire to extend and form the future plant. Apply liquid manure to the roots if the soil is not rich.

Names of Plants (W. W. N.).—The flowers you have sent are of the Cheddar Pink, *Dianthus cæsius*; it grows freely on walls and in the crevices of rocks, large masses of it being very attractive and fragrant. (*J. W. H.*)—1, *Dendrobium lituiflorum*; 2, *D. Wardianum*, a fine variety; 3, *D. Jamesianum*; 4, *Cattleya Mendelii*; 5, *Masdevallia Veitchiana*; 6, *Thunia Bensoniæ*. (*R. M.*)—1, *Veronica gentianoides*; 2, *Myosotis sylvatica*; 3, *Ramondia pyrenaica*; 4, *Phyteuma comosum*; 5, *Narcissus poeticus*, fl.-pl. (*W. R.*)—1, *Asplenium marinum*; 2, *Adiantum trapeziforme*; 3, *Doodia aspera*; 4, *Blechnum Brasiliense*; 5, *Gleichenia dicarpa longipinnata*.

COVENT GARDEN MARKET.—MAY 31.

WITH the holidays our market has been quiet, but prices remain much the same, all classes of goods being well supplied.

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	3 0 6 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney	100	1 3 1 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 5
Broccoli.....	bundle	0 8 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	bushel	2 6 3 6
New Carrots.....	bunch	1 0 1 3	Kidney.....	bushel	3 0 3 0
Capsicums.....	100	1 6 2 0	Radishes....	doz. bunches	1 0 0 6
Cauliflowers.....	dozen	1 0 3 6	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts.....	doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	0 0 0 0
Endive.....	dozen	1 0 2 0	Shallots.....	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	lb.	0 6 0 0	Tomatoes.....	lb.	1 0 0 0
Herbs.....	bunch	0 2 0 0	New Turnips	bunch	0 6 0 8
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 0 0 0

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Lemons.....	case 15	0 to 20 0
Apricots.....	doz.	0 0 0 0	Melons.....	each	4 0 6 0
Cherries.....	lb.	0 0 0 0	Nectarines.....	dozen	0 0 0 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	15 0 20 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	8 0 10 0	" dessert.....	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples.....	lb.	1 6 2 0
Cobs.....	100	1 45 0 50 0	Strawberries	lb.	2 0 6 0
Gooseberries.....	½ sieve	4 0 4 6	Walnuts.....	bushel	7 0 8 0
Grapes.....	lb.	3 0 6 0			



POULTRY AND PIGEON CHRONICLE.

THE PRODUCTION OF WOOL AND ITS USES.

(Continued from page 436.)

WE must now refer as regards our home-grown wool to the effect of our climate, and also to modes of management and feeding of the animals. It is the fact that the dampness of the climate in this country, and particularly that of the western and south-western counties, is unsuitable for the production of fine wool, and the system of management altogether is opposed to it, which can be readily understood when we know that in Germany a considerable quantity of straw and other dry fodder with nightly shelter is the method successfully employed for improving the fleece, Turnips and a moist diet being unfavourable to it; and even on our driest pastures, the Downs of the south and south-eastern districts of England, the chalky soil gives a roughness to the wool. Thus the very same system which improves the carcass deteriorates the wool' so that fat mutton and fine wool cannot prosper together. Wool differs from hair chiefly by growing in a spiral form, and being more pliable and softer and having an unctuous secretion, whilst it resembles it by springing from small bags beneath the skin, which it penetrates. Like hair each filament is a minute tube filled with pulp, but has a scaly external structure pointing to the extremity, and to which it owes its felting power and its adaptation for clothing purposes. In various wild breeds hair is greatly intermixed with the wool, which is deteriorated in consequence, but frequent shearing diminishes or eradicates it. In this country, however, the fleece will generally peel off by degrees of itself every year in warm weather—a period which is anticipated by shearing. The wool of this country has long been distinguished as long and short wool, to which used to be applied the terms combing and carding wool. This latter distinction no longer applies, because the greater part of the short wool that was formerly used in making cloths is now devoted to combing purposes. This is owing to the great superiority of Merino and other foreign wool. This, of course, has materially reduced the value of British short wools, and it would have been still further reduced had not the improvement in machinery enabled the short wool to be devoted to combing purposes. The same fleece affords wool of various degrees of fineness, and it is the business of the wool-stapler, who purchases the fleece of the grower, to sort these various qualities and prepare them for the manufacturer. The fleece is unrolled, and the workman, having a number of baskets around him, selects the finest locks from the coarse ones and arranges them in the baskets with celerity surprising to the uninitiated.

The woolstapler in his business of sorting the wool is directed both by sight and touch in this operation, and is obliged to serve a regular apprenticeship before he acquires the proper degree of skill. The finest wool is procured from the neck, shoulders, and

sides of the animals ; the next from the upper part of the legs and thighs, extending to the haunch and tail ; and the most inferior is distributed on the upper part of the neck, throat, belly, breast, and part of the legs. The stapler, however, arranges it in six different allotments, and the finest wool is divided into no less than ten ; these are termed according to their degree of fineness, and may well be expressed in numerical order, thereby denoting the variety which exists in a single fleece. Carding is a name given to the process which wool undergoes in being made into cloths or woollen goods, whilst combing is a part of the process in making worsted goods. Short and fine wool, for the most part, is employed for the former, and long and coarse wool for the latter. The card is an instrument which breaks and divides the wool into a multitude of fragments, which from the spiral growth of the wool, are necessarily left in a curved state ; and from this and other causes they are disposed to lock together and adhere on

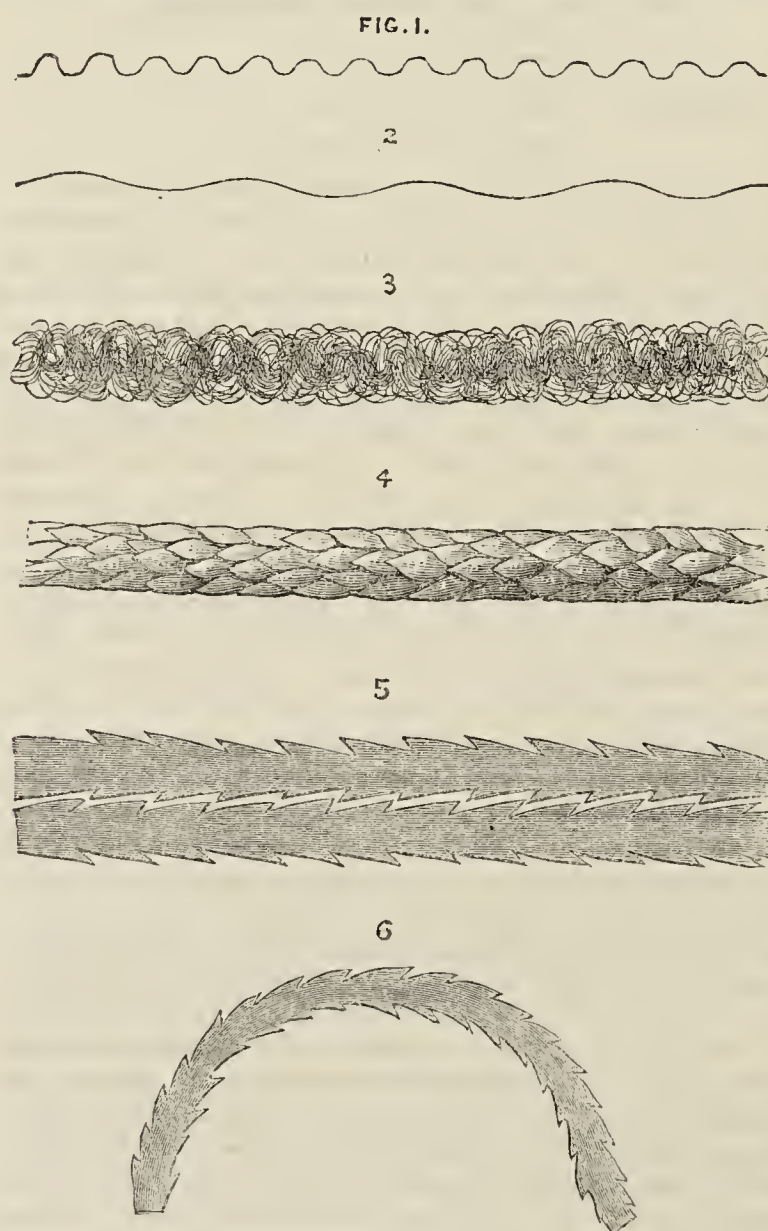


Fig. 90.—Wools magnified.

being subjected to moisture and pressure, as is shown in the felt of a hat which is thus made. This disposition is called felting. After being broken into fragments which adhere loosely together, it is spun and woven into cloth, being for this purpose well oiled. It is afterwards fullered—that is, the oil is extracted by means of fullers' earth, and it is the moisture and pressure of this process which call out the felting properties of the wool, and give it that close and dense appearance which fine cloth assumes. Wool for worsteds, on the other hand, is combed smooth and not broken into pieces, and is then spun, so that it retains a looser appearance. The perfection of wool-spinning cannot be better illustrated than by the facts that in ordinary spinning a pound of wool is made to extend upwards of 1300 yards ; in superfine spinning a distance

of 22 miles ; and it is an established fact that this quantity has been spun into a thread reaching the incredible distance of upwards of 95 miles. These latter observations which we have quoted are from the excellent treatise on the "History, Structure, Economy, and Diseases of Sheep," by W. G. Spooner, M.R.V.C., which book we can recommend to the home farmer for his perusal and instruction.

To enable our readers to understand the interesting point as to the minuteness of the fibres, and the serrations in the structure of wool, although it differs somewhat in different breeds of sheep, we give an illustration or diagram (fig. 90) of various wools as viewed through an achromatic microscope, and sufficiently magnified to show the serrated and varied structure of the wool from sheep of different breeds, as well as the relative size and appearance.

The following description with diagram by Professor Archer, explains the essential character of wool :—"The essential characters of wool can only be learned by a very careful and even microscopic examination of the material. Most of the terrestrial mammals with hairy coats produce two kinds of hair. The first and most apparent is that which is usually called 'hair ;' the other, which is generally shorter and underlies the former, is called 'wool' or 'fur.' Hair is almost invariably cylindrical, with a smooth surface, whereas wool and fur are covered with scales, and some kinds have a waved or otherwise varied outline. The scales are of the utmost importance, and upon their number in a given space depends, in a great measure, the quality of the material. But besides being scaly, as shown in fig. 4, wool from the sheep is also waved, as in figs. 1 and 2, and in fig. 3, the two former representing a single fibre of short and of long staple wool, the other a small lock of wool. It is attempted to show in fig. 6 that the scales on each fibre are only attached by their bases, so that if we bend one its scales are lifted up and project, their points, however, being all in the same direction. An it is further intended by fig. 5 to show that if two fibres are brought side by side in opposite directions the scales of one will catch in those of the other, and if we encourage this by mechanical means the result will be such an interlocking as will not be easily disconnected. Moisture will facilitate this combination very much, so that if a handful of wool be wetted and rubbed or beaten the fibres will work into one another and form a compact mass. Upon this quality depends the shrinkage of flannels and other woollen goods when washed, and also the process called felting. The waviness of the fibres, too, enables them to remain intertwined when they have been spun into threads, and is, consequently, a very important quality ; for if we take fibres which lack this property and twist them, if they possess any elasticity they will not remain twisted, not having any hold upon each other. Human hair will illustrate this.

"The structural peculiarities of wool are found to be so permanent that hardly any amount of wear will injure them ; hence it is found that woollen clothing reduced to rags may be torn up and its fibres separated into the state of wool again, and then recarded and spun into yarns for the wearing of excellent cloths. The discovery of this fact during the present century has added very much to the national wealth by the prevention of waste and the creation of a new class of manufactures."

We will now consider how the home farmer can, when he offers his wool for sale, have the credit of obtaining the best price for the article by having produced it in the best possible condition. It is commonly supposed that the washing the sheep is a very simple matter. Even selling the wool in the grease, it having been shorn from the animals without being washed at all, is advocated by some growers in the counties of Devon, Somerset, and Cornwall, and there is a great difference of opinion amongst farmers about the policy of washing. The buyers, however, prefer

it well washed, and it is a more marketable commodity in consequence. The reports from the United States, continental countries, as well as our wool-growing colonies, all concur in the practice of washing the wool on the sheep's back. We have a valuable, practical, and suggestive description of a mode of spout-washing sheep upon a large scale, furnished to the Royal Agricultural Society by Mr. G. H. Cox, a member of the Legislative Council of New South Wales, and a plan of the whole arrangements, which we cannot here illustrate, but can describe to a certain extent, steam being employed for some of the various purposes. The wash-pen and the *modus operandi* is as follows:—"Twelve sheep are caught and thrown into the hot-water tank (making four in each compartment), which has been previously filled with water to within 6 inches of the top, heated from 100° to 110° Fahrenheit, and in which also has been dissolved from 15 to 20 lbs. of soft soap. The sheep then walk up an incline, or are lifted upon a grating at the end of the tank, and after the fleece has been squeezed are made to slide down an incline into the hands of the washers (who stand in zinc tubs), and are placed upon supports, immediately under the jets or spouts, where they are turned round and round until thoroughly cleansed; they then swim to the end of the pool and walk up an incline to the top of the dam or causeway, after which they pass to the drying paddocks. In this way from 500 to 700 sheep a day can be washed as white as snow." We have introduced this method, thinking it may lead to improvements in washing in this country, but of course only in the case of large flocks like some of the long-woolled flocks in Lincolnshire or mountain districts of the kingdom. The place of sheep-washing adopted by the late Mr. Wm. Torr, of Aylesby Manor, is an improvement upon the old rough system of bathing in water only for a short time, was as follows:—"A tub or tank used was made on the farm of the best red-wood deal 1½ inch thick, 5 ft. 2 ins. long, 3 ft. 1 in. wide, and 2 ft. 3 ins. deep. The boiling copper used holds 24 gallons of water; soft soap used, 1 lb. to every twenty sheep. Eight men are required; four to stand at the washing-tub, one to catch and halter the sheep, one to stand at the head of the tub to keep the sheep's head above water, one to lead water into the reserve tub, and one to boil soap, &c. About thirty sheep an hour, or three hundred per day, can be washed."

We must now quote the opinions and recommendations of the Bradford Chamber of Commerce, the members of which are largely interested as buyers of wool, in having it produced for sale in the cleanest and best manner possible. They say:—"The Chamber has taken great interest in the getting-up of wool, as will be seen from the circulars and reports. The Committee are of opinion that the best way will be to state concisely their views in the following order:—1, That wool should not be washed or dipped before the first week in June, or later where the district is cold; the object being to have as much yolk as possible in the wool, so as to secure a good scour in the washing. 2, The information and experience which the trade and the Committee have gathered during many years leads them to say that washing in tubs under proper conditions is of great advantage to the wool, because the yolk being a kind of natural soap, and sound in great abundance at clip time, it follows that by washing in a stream or large pool of water the valuable effects of this natural soap are, to a great extent, thrown away; and in dyke or stream-washing, the sheep in many cases have to be driven for miles along dusty roads; so that even where a thorough wash has been obtained at the stream, its effects are partially neutralised, and the wool is dusty and discoloured. Tub-washing on the farm obviates this.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Since the heavy rains at the beginning of the month of May the weather has been favourable for sowing Mangolds and Carrots, as well as planting the latest varieties of Potatoes. It is even now not too late to drill the seed of Mangold and Carrots if the land is in good condition, or freely dressed with artificial manures at the time of drilling. The seed does not, however, always germinate if it is drilled after the fallow preparation if the weather is very dry, in which case we prefer drilling after once ploughing where Rye, Trifolium, or other catch crops have been recently cleared off, proceeding in such cases to plough and work down and drill the land as fast as it is ready, finishing off all the work the same day. This plan, and this only, is the surest way to start the seed at once, which is the most important point, as every day of dry weather which prevents the seed vegetating is so much time lost, for at so late a date it means also the loss of so many tons of roots per acre. We have, however, frequently by this method obtained 26 tons of Mangolds per acre, although seeded after the hay crop has been taken. At all events, we could always grow more weight of Mangolds per acre than of Swedes, which is an important point to be considered, especially as

a ton of Mangolds has one-fifth more feeding value than a ton of Swedes, which we have proved for many years by giving our hullocks in the boxes 60 lbs. of Mangolds per day, but 75 lbs. of Swedes as the equivalent.

The land now in fallow for Swedes again works freely since the rains; and in all the southern and south-eastern counties, where the soil is light and free-working, the best time for drilling Swede seed is from the 6th to the 10th of June. In the later districts of the midland and northern counties the best time is from the 20th to the 24th of May, as we noted last week. Cabbage and all the Brassica tribe may be planted now if the land is ever so dry, only it must be done by the spade, the advantage of which is that the plant roots reach the moist subsoil and the dry dust does not run in with the plant as when planted with the setting stick; again, if the weather should be wet the spade is still the best way to plant, because the soil does not become kneaded as when the setting stick is used.

Every preparation should now be made by turning and mixing earth with a portion of yard or town manure in readiness for laying out on pasture or park lands as soon as the hay crop is removed; and if immediately spread and after a few days chain-harrowed, at the end of a month it will afford good grazing for either cattle or sheep, whilst the cartage will not have disfigured the surface as when done in the winter months when the turf is soft and yielding. Many pastures, like our own, are much infested with the Buttercup, as this yellow flower is commonly called, which is very pernicious to dairy cows, although they avoid it as much as possible; but in so doing they cannot eat the grass down equally level. It is also of a very hot acrid taste. We therefore run the scythe or mower over the pastures, not low enough to cut the grass, but high enough to just reach the flowers and dispose of them by preventing their seeding; thus diminishing the future growth of them and enabling the grass to grow better, and likewise enabling the animals to eat it more freely and with more regularity.

The cutting of grass for hay will now be in full operation in all the early districts, and we ask the home farmer not to be deluded by fine weather from the purchase of the exhausting implement for withdrawing the heat from hay and cornstacks; because if the weather is ever so fine he should be provided with the exhaust fan and construct the ricks in order to make use of it, for when the weather is fine the hay or corn can be put into rick several days earlier, which not only preserves it from the effects of any sudden change to stormy weather by delay and otherwise, but the hay, being heated and prevented from becoming overheated, is always the best hay. We have on various occasions formerly, when making Dutch or Hop Clover grass into hay for our early lambs, frequently, when the weather threatened for rain, put it into stack, knowing that it would overheat; but experience told us that our best hay had been that which was heated in rick, and required to be turned over and up into stack again. This is the very point to be considered now we have the ingenious invention of exhausting the heat to make use of, for we may be assured that the younger the grass when cut and the quicker the hay is put into stack the higher the quality of the hay will be, and also be freer from the risk of damage from rain, although we know that damage by rain also is reduced to a minimum by the use of the exhausting-of-heat process.

Hand Labour.—Hand-hoeing is now going on amongst the Potatoes, the horse hoe having previously been used between the lines. Before hand-hoeing, however, we like the plan of forking out any couch which may be found by the women before hand-hoeing, for the latter often cuts the running grass into shreds, and extends the plants rather than diminishes them; and as a few pieces of couch with all our care on the sandy loams or mixed soils will still be found, let it be taken as a rule that the first opportunity is the best for the removal of couch, as is frequently by hand-forking. The expenditure of 2s. or 3s. per acre will often prevent a future expenditure of costly horse labour, preventing also delay at seeding time. Men should now be employed in preparing the ashes by screening, to be used with artificial manures for the root crops. A farmer told us yesterday that his Swedes and Turnips have been seriously injured for some past seasons by the clubbing of the fibrous roots, and that to meet the difficulty he had sowed his whole lain of roots with Mangolds. This, no doubt, is wise, especially if some Belgian Carrot seed also had been put in to the extent of a few acres; but we told him that if he wished to grow Swedes or Turnips he could do so successfully by applying 25 bushels per acre of fine-screened chalk mixed with the artificial manures and drilled with the seed.

Live Stock.—Dairy cows this spring, where they have been allowed to partake plentifully of the abundance of grass which this season has given, have done remarkably well; but we find that the milk trade is not so much in favour with the farmers as it has been, especially where the farm is distant from the towns or railway stations. The making of butter from Channel Island cows is receiving more attention; but for making cheese the shorthorned cows are most approved, and also they are most approved for suckling calves for veal, which is a very inexpensive way of beneficial dairy farming, especially where the Devon or Hereford calves can be obtained, as these far surpass shorthorned calves for quality and value. One of the great advantages, however, especially for heifers with their first calf, is that the cows through being suckled by calves instead of being milked by hand continue in profit five or six weeks longer which in our estimation is a very important point in dairy farming

for in some districts it is now almost impossible to get hand-milkers who will take sufficient trouble to milk the cows properly.

POULTRY AND PIGEONS

POULTRY AT LARGE.

To farm poultry to pay the hen house is not the least item. The last farm I leased had no accommodation for anything of the kind, and the rent was £3 5s. per acre; my lease being only half run when I left, my successor entered upon it and paid me the value of my chattels. My laying and feeding house, which was cemented on the ground floor, was 16 feet by 8 feet, with a gangway between tiers of nests 14 inches square, and a roosting loft above them. The feeding houses were 32 feet by 8 feet, 6 feet from floor to roosting bulks, well lighted and ventilated. The stock of cocks and hens at Martinmas was forty-five, the weekly expenses were 8s. 3d., and average weekly cash for eggs during the year 14s. 9d. Twenty-six hens were set from February, 250 birds being hatched. The deaths by the end of March were fifty-three, when I obtained a supply of Spratt's feeding stuff, and dying ceased, and my stud of chicks was 205, attended by nine hens having from twelve to twenty-five each. I may mention that if a hen has a large family to look after her brood generally does best.

Fifty pairs of chickens were sold at 5s. per pair for the table to one customer, the rest of stock being sold according to demand, leaving £19 10s.; add this to the profit of eggs for 52 weeks, and the sum is fair for a capital of £4 10s. invested. Eggs were sold at market price to a dealer from 7d. to 2s. 2d. per dozen, according to the season of the year. I am quite aware that farmers, as a rule do not consider poultry profitable, but they are if attended to properly, and at the present prices of butchers' meat will pay even better than any four-footed animal. I have had experience of more than forty years in farming, and never had land at less than £2 12s. 6d. up to £5 7s. 6d. per imperial acre, and have had five landlords at a time. I have Wheat (28 stone to the bole of six bushels) at 25s.; Barley, 15s.; Oats, 12s. 6d. (18 stones), and never lacked a fair balance on the profit side on the lease. Pigs I have reared, and sold from 5s. to 35s. each six weeks old; beef (prime), 5s. up to 11s. per stone; and kept a regular debtor and creditor sheet of all transactions.—OLD FARMER.

P.S.—It will be noticed that I kept my breeding stock entire: forty-five Dorking hens crossed by Brahma cocks.

POULTRY-FATTENING IN SUSSEX.

IN the Heathfield district the usual food consists of ground oats, suet, and milk—skimmed or unskimmed—to which sometimes a little linseed oil is added, especially in winter. At first chickens have to be fed carefully, if not charily. Their greediness is so intense that they are apt to choke or overfeed themselves, and then there is an end of fattening. Allowing them three weeks, they are as a rule kept on oatmeal (made into gruel) one week; then suet is added, and the last week they are crammed. Milk is highly valued as an addition to the ordinary diet, and one poultry breeder, Mr. Olliver, has used as much as £10 worth a week.

Cramming is a peculiar process not confined to Sussex poultry fattening, but here the art is utterly free from the inhuman cruelty of the Alsatian practice. It is done with a machine, and the chickens have their crops filled twice a day. This process is continued for about a week, supposing a preparatory course to have been gone through. After about a fortnight the food ceases to take effect, the fowls "go back," and fever is apt to set in, which kills them. So long as they are not kept beyond the proper period it is surprising how few deaths occur in their ranks.

Killing and preparing the fowls for the market are operations as important as cramming. Carriers send their carts round to the various farm houses to collect what fowls are ready, and convey them to market, conducting the sale and bringing the proceeds home to the fatters after paying themselves for carriage. In former times the carriers' vans used to take the fowls right into London, and "journeys" were restricted to one or two days a week. When the South-Eastern Railway was built, Ticehurst became the collecting station, from which the chicken crates were conveyed by rail. Since the opening of the new branch of the London, Brighton, and South Coast Railway, Heathfield has been made the head quarters of the traffic, and in order to accommodate customers, the railway company have provided special cars which do nothing but carry Sussex poultry. With very few exceptions this is sold at Leadenhall Market and in Smithfield.

When the carriers come round to collect the fowls the latter

must be fresh killed. Hence it is desirable that they should be killed quickly, and men acquire a peculiar knack of despatching them "as fast as you can hand them" by a sudden wrench of the neck. A man can kill and pick about two dozen a day; an exceptionally good hand can manage three dozen. The next process is the "stunning," to remove the stumps remaining in the skin. This is done by women with a knife, at piecework, about 4d. being paid for the dozen. After that the fowls have to be "pressed," to give them a good square shape. For this purpose the fowls are laid in rows in a crib-like frame, with a board placed over them, weighted at first with stones. As soon as the fowls are "set," stones and covering are removed, and then, when the time comes near for the carriers to call, the birds are packed in crates, and in these they are carried to London. A dozen fowls will yield on an average something under a pound of dry feathers, which sell at about 6d. a pound. In spring the yield is considerably less, in autumn more. The price of feathers varies according to the market. Many are sold locally for beds, 60 lbs. being reckoned to the bed. Before sale the feathers are dried in an oven, or else in an oast-house, like hops.

Some time back it was calculated that in a year not less than £70,000 was realised by the sale of chickens in this small district. The traffic is, indeed, so considerable that the enterprising London and County Bank at one time contemplated the establishment of a branch office in the small village of Heathfield. The facilities offered by the carriers, who act as bankers, have hitherto made such a step superfluous. But the traffic is growing. The summary of the yearly balance sheet, prepared previous to a dissolution of partnership by Mr. Bean of Heathfield, and his late partner, shows that that firm in 1876 carried £24,130 17s. 10d. worth of chickens to market, receiving therefor £255 14s. 11d. for carriage, at the rate of 20s. a ton. Allowing one-eighth for packing-cases, the nett weight conveyed is found to be 224 tons, representing something like 125,440 chickens sold at 3s. 10d. a head on an average. This was the traffic of one firm only. Since 1876 the sale has increased.

Fowls or chickens are fattened up to all weights, 2 lbs., or 5, or 8, or more. Mr. Olliver once produced one weighing 13 lbs. Fattening is also practised on all scales. There are farmers who lay themselves out for this as a speciality, fattening all the year round, and keeping their coops full. Among this class Mr. Joseph Olliver takes the lead, keeping about two hundred dozen always in hand, and killing forty dozen at a time, in the busy season even six times a week. He uses nearly seven hundred sacks of oats a quarter, £130 worth of milk, and 700 stone of suet. He keeps six men constantly employed, and about twenty women. His fattening is all of a wholesale character, supplemented at times by thirty dozen or so of Ducks. Other fatters again proceed on more modest lines, killing fifteen dozen a "journey." Others fatten only when the market is favourable, a few dozen, or ten or twelve dozen at a time.—(*Sussex Advertiser*.)

OUR LETTER BOX.

Turkeys not Thriving (C. H.).—In all probability the young birds have either had too wide a range, or have been allowed to frequent a damp position. We have seen many young birds fail in the limbs by being dragged through long grass and herbage for hours together before they had strength for such, to them, violent exercise. You give no indications of the treatment to which your birds have been subjected.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1882. May.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sun.	21	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	21	29.881	57.1	52.2	S.E.	54.8	63.8	45.8	118.1	40.0	—
Mon.	22	29.873	63.4	57.3	N.N.E.	54.9	73.5	46.9	119.2	42.3	0.692
Tues.	23	29.603	64.3	58.6	E.	55.5	70.6	53.2	116.6	47.2	0.013
Wed.	24	29.481	58.4	52.3	S.	55.6	66.8	51.1	121.7	46.7	0.119
Thurs	25	29.405	52.8	51.6	E.	55.5	62.5	51.3	78.7	45.9	0.248
Friday	26	29.800	59.8	53.8	S.E.	54.8	67.6	51.2	122.4	45.7	—
Satur.	27	30.023	64.0	55.8	S.W.	55.1	69.2	51.7	120.3	46.8	—
		29.724	60.0	54.5		55.2	68.4	50.2	113.9	44.9	0.472

REMARKS.

21st.—Calm, fine, and warm.
 22nd.—Cloudy morning; slight shower in forenoon; afternoon fine; very warm.
 23rd.—Warm and close; threatening thunderstorms at times.
 24th.—Cloudy morning; shower 1.30 P.M.; afternoon fine and breezy.
 25th.—Wet morning; fine latter part of day.
 26th.—Fine, bright, and breezy.
 27th.—Slight shower in forenoon; generally fine and bright.
 Temperature above the average, with variable wind, lower barometer, and rain on several days.—G. J. SYMONS.



8th	TH	Alexandra Palace Decorative and Pelargonium Exhibition. 1ST SUNDAY AFTER TRINITY.
9th	F	
10th	S	
11th	SUN	[11 A.M. Evening Fête, 8 to 12 P.M. Royal Horticultural Society, Fruit and Floral Committees at York Floral Fête. Three days.
12th	M	
13th	TU	
14th	W	

RHODODENDRONS.

DURING May and early June thousands of British gardens are annually rendered extremely gay by the varied hues of Rhododendrons, and they have become such general favourites that they are almost indispensable for beds, borders, and shrubberies. When in flower they are unsurpassed for richness of colour, and at other times the deep green, firm, handsome foliage constitutes no mean attraction. In dells, sheltered nooks, or in open beds on lawns they have a charming effect; but in the former, particularly as on sloping banks, they always appear to better advantage than in ordinary level beds. Where the position, too, is moderately sheltered a greater number of varieties can be grown; and some of the tender forms, which in many cases possess the richest tints, cannot be satisfactorily cultivated in exposed places, except in the warm southern counties. Wherever a good representative collection can be had their beauty for several weeks is unrivalled by any other occupants of our gardens, and it is not therefore surprising that they have gradually secured a foremost position amongst the most useful evergreen shrubs in cultivation.

We have now the results of much careful and thoughtful labour at our command. For years hybridisers have been working with the Rhododendrons, their objects being to obtain a combination of bright colours with a hardy habit, and a large measure of success has attended their efforts. It is somewhat remarkable that the finest flowers, the most delicate and richest tints, together with powerful and pleasing fragrance, are found to characterise those species which have hitherto proved too tender for satisfactory outdoor culture in this country, except in the extreme south. The really hardy original forms were mostly rather dull in colour, purple, lilac, and pale rose tints predominating; but it was soon evident, when attention was given to the matter of crossing, that the desideratum was a combination of their constitution with the attractive colours of the others. This object was steadily pursued by several ardent horticulturists, and the success achieved is fully evident in the grand varieties and hybrids now offered by the leading nurserymen, who make a speciality of such plants.

It may be interesting to briefly note a few of the earlier forms that constituted the basis upon which the hybridisers had to work, and in contrasting those with what we have at the present time a good idea will be gained of the progress made in the past half century. The chief species that have been the parents of the ordinary hardy Rhododendrons are *R. maximum*, *R. ponticum*, *R. caucasicum*, *R. catawbiense*, and *R. arboreum*. The first named, *R. maximum*, is a native

of Western Pennsylvania, where it was originally found growing in sterile soil on rocky declivities on the banks of rivers and shady moist positions. It was introduced to England by Mr. Peter Collinson in 1736. It has neat flowers of moderate size, varying in colour, but generally rose and white with dark spots on the upper petal of each bloom. They are borne in compact but not dense heads, which, however, in the typical forms are not produced very freely, though some of the trusses obtained from this are amongst the most beautiful known. It is late-flowering, but is very hardy, and the blooms, being of thick texture, are very durable.

R. ponticum is a European species, in the first instance introduced from Gibraltar about 1763, but it is also found in the Levant and on Mount Caucasus. Though generally hardy this is sometimes injured by late frosts in spring—a disadvantage that has been remedied to a great extent in some of its varieties. The flowers are purplish and white with oval petals, the upper one spotted, and the heads are moderately compact, the leaves being lanceolate and bright deep green. It is worthy of note that at the commencement of this century *R. ponticum* was a favourite for forcing, numerous plants being sent to the London markets early in the season, when they were much valued for decoration.

R. caucasicum has formed one of the most important of the parents of our garden Rhododendrons, for most of the early-flowering varieties have been derived from this, directly or indirectly. It inhabits Mount Caucasus, being found at considerable elevations on the verge of perpetual snow, where it is accompanied by very few other plants, except some of the hardiest. It is dwarf and extremely floriferous, the flowers in the original forms being rosy or white, the outer portion being often more deeply coloured than the inner. The heads are of moderate size, but compact. The leaves are ovate, with the margin rolled back, the upper surface being deep rich green and the lower brown. It was introduced from the Caucasus about 1803, and from it a race of beautiful varieties have been secured, especially suited for culture in pots and early forcing. *R. Nobleanum* is one of the best known hybrids which this species and *R. arboreum* have furnished.

R. catawbiense is another of the American species, inhabiting the mountainous parts of Virginia and Carolina near the source of the Catawba river, where it was found in 1808 by Mr. John Fraser, who introduced it the following year. The flowers are large, rich rose, and are borne in large rather loose heads, the leaves being oblong and dark green. In securing a thoroughly hardy race this species has proved most valuable, and hybridisers have availed themselves of its qualities very extensively. It is free and of good habit, and will endure extremely severe weather without injury—a fact of great importance in our climate.

R. arboreum, the last of the species which we shall particularly refer to in these notes, is also one of the most important, for to this we are indebted for the brightest red and rose hues distinguishing the most showy varieties. It is one of the numerous handsome Indian species, being found near the Himalayan Mountains in the Sewalic chain, where it was first discovered by Capt. Hardwicke in 1796 growing at high elevations in Oak forests, where the soil is said to be a rich black earth on a stony bed. Seeds were imported to this country early in the present century, but it was not until 1825 that any of the plants so raised produced flowers, when it at once

attracted the attention of horticulturists. Unfortunately it was found to be too tender to bear English winters, and it is only in such a home as the Winter Garden at Kew where it can attain its full size and perfection, when the appellation of "arboreum" is at once evident, as it is quite tree-like in dimensions. The flowers vary, but in the old type they are deep scarlet, large, round, and produced in very dense globular heads. A white variety was also early introduced, and several others followed, which have proved useful as parents for crossing with other hardy forms. One of the first and most beautiful hybrids raised was *R. altacrerense*, the result of a cross between *R. arboreum* and *R. catawbiense*, which was obtained at Highclere many years ago. This has been largely employed in combination with other hardy forms, and has given rise to several distinct and beautiful races.

That in the future still further progress will be made is undoubted. The grand Himalayan species, such as *R. argenteum*, *R. Aucklandii*, *R. Falconeri*, and many others, will probably receive some attention, and if hardy varieties of any of these could be procured they would be magnificent additions to our garden shrubs. In several establishments collections are now being tried out of doors in localities where they have hitherto been deemed too tender to survive; and though the past winter has not been a severe test for them, yet some good results may be expected from the experiments.

But although much remains to be done in perfecting this grand genus of evergreens, much has unquestionably been accomplished, as is apparent by a study of the varieties in the Rhododendron tent, now gorgeous in the gardens of the Royal Botanic Society, in Messrs. Veitch's nursery at Coombe Wood, in Baron Schroeder's beautiful grounds at Egham, and in Mr. McIntosh's unique collection referred to last week. Passing round the beds at Dunevan the following were conspicuous out of hundreds of others, and must rank amongst the best varieties in cultivation.

Charming among the richer colours and worthy of a place in all gardens are Mrs. Russel Sturgis, white with yellowish blotch; Sappho, also white with a still more conspicuous blotch; Sultana, of the same character, fine; Fair Helen, similar, and perhaps finer; Madame Carvalho, Mrs. John Clutton, The Queen, and Purity, all beautiful by their pearl-like petals and noble trusses; papilionaceum, effective by its striking blotch, and Standish's Perfection, as faultless as its name implies. Most attractive, too, is the lovely blush, changing to white, variety Hester, and all should add it to their collections.

Now for a contrast. Some of the finest of the very darkest varieties are Dhuleep Singh, deep rich maroon, and a grand truss; Joseph Whitworth, similarly rich, more spotted, and highly effective; W. H. Punchard, also dark and rich, its bold bronze blotch imparting quite a metallic appearance to the flower; Sir J. Sebright, purplish bronze, fine; Old Port, its name indicating its colour; Iron Duke, crimson scarlet suffused with bronze; and the new variety Agamemnon, maroon, and conspicuous by its white blotch, which is very unusual. Among many others that are good those named cannot be overlooked.

Coming to the glowing crimson and scarlet varieties it is not easy to make a selection from among so many that are good; but no one can err by planting Michael, Frederick, John and Helen Waterer, for all are rich with splendid trusses. Charles Bagley, Beauty of Surrey, and Lord Selborne are scarcely inferior to them; and Meteor is one of the brightest of all, but the truss not so large as some others. James Marshall Brooks is a splendid crimson variety with a striking greenish blotch.

Of the rosy crimsons, very fine indeed are Raphael, richly spotted; Archimedes, effective; Marchioness of Downshire, fine truss; James McIntosh, singular by some of the flowers opening pale rose; Lord Eversley, some of the trusses a foot in diameter; Mrs. Joseph Shuttleworth, conspicuous by its dark blotch and white stamens; Decorator and Blandyanum, both very good; Baroness Lionel de Rothschild, rich; and Sigismund Rucker, magenta rose, distinct.

Different in hue and not less beautiful are Mrs. R. S. Holford, salmon pink, magnificent truss; Lady Armstrong and Mrs. Wm. Agnew, noble glowing pink varieties; Lady Clermont, Lady Frances Crosby, B. M. Currie, and Mrs. John Penn, all alike fine, rose suffused with salmon. W. E. Gladstone,

rich rose; Mrs. Thomas Longman, Lady Falmouth, and Duchess of Sutherland are all excellent; Vauban, very fine blotch and truss; Madame Van der Weyer, pale rose, attractive; Rosabelle, similar in colour and merit; Lady Eleanor Cathcart, distinct and beautiful; Marchioness of Lansdowne, also prominently blotched, the flowers resembling Pelargoniums; Vivian Grey, very fine; and Kate Waterer, excellent.

A few of the best purple and lilac varieties are cyaneum, nearly blue, distinct; picturatum, fine bronze blotch; purpureum elegans and fastuosum flore-pleno, both effective; Nero, a grand purple variety; Marie Stuart, lilac, bold blotch, fine; Apology, silvery lilac, very beautiful; Stella, also attractive; Princess of Wales, purple, centre of petals white, quite distinct; Caractacus, having petals crimped after the constant and gay Everestianum, which should be planted wherever Rhododendrons will grow, and that is nearly everywhere, except in limestone soils and where the subsoil is not dry.

They flourish under trees as well as any other shrubs do, but those enumerated demand the best of positions. They succeed in towns, and render gay suburban gardens. They are grown on lawns in the form of standards—miniature trees, gorgeous when in flower, and at all times agreeable, therefore let them be grown more freely; and at this season, if the weather and the soil be dry, let the shrubs be copiously watered; let also the trusses be removed as the flowers fade, this not only being essential to the good appearance of the specimens, but to prevent the formation of seed, which is exhausting; yet in the case of any growing very luxuriantly Mr. McIntosh finds it advantageous to permit the seed pods to remain for some time, as he thereby secures sturdier growths and a finer display of flowers another year. Thus every operation of gardening should be governed by thought and intelligence, even such a simple process as removing the dead flowers from Rhododendrons.

MUSHROOMS FOR THE MILLION.

(Continued from page 419.)

SITE FOR MUSHROOM BEDS.

WHEREVER the site and soil are such that water does not accumulate on the surface, there the beds may be arranged and Mushrooms grown. But shelter from cold penetrating winds is a decided advantage. Mr. Barter's Mushroom ground is fully exposed to the north and east, yet with the aid of wattled hurdles he achieves the results that have been recorded. Mr. Gilbert's beds, though nearly a hundred miles further north, are much more favourably situated. They are arranged in a strip of ground about 100 yards long from east to west, and 20 yards wide. The northern boundary is a lofty garden wall, a hedge running along the south side of the enclosure. A lean-to bed is formed along the wall facing south, the remainder of the ground being covered with ridges across the strip, and consequently at right angles with the wall. This is an admirable position, and prodigious crops are gathered; and there is no doubt whatever that if the same cultivator practised two hundred miles still further north and had a similar position he would with good manure and spawn have equally productive ridges. Shelter, then, is desirable but not essential, and there are sheltered nooks in almost every garden and homestead that could be more profitably occupied with Mushrooms than by any other crop that could be produced on the ground. If there are no such favoured places make the beds in the open the same as is done in the vegetable fields round London, and protect them sufficiently with straw and hurdles, and an ample return will be derived from the labour and material thus invested. It is important to remember that if the soil is good on the site the beds are to occupy it should be previously removed

to a depth of several inches and placed in a heap, as it can be far more profitably employed on the beds than under them. The excavations so formed can be filled with rubble, thus providing dry foundations for the beds.

SIZE OF THE BEDS.

The size of beds or ridges for the culture of Mushrooms in the open air should, as before mentioned, be $2\frac{1}{2}$ feet wide at the base, about 6 inches wide at the top, and $2\frac{1}{2}$ feet high. At the angle thus formed soil will adhere to the sides firmly, while a great portion of rain will pass off freely, especially if the top is slightly rounded, as it should be, not quite flat. If the angle were less acute the beds might be saturated during heavy falls of rain; but this does not occur when properly made of the form described, well cased with soil, and, if needed, protected with canvas or other suitable coverings over the straw. When this method of Mushroom culture is adopted such covers should be in readiness, as they will be especially needed in districts where the rainfall is heavy, and they are also of great service for conserving the heat of the beds during severe weather. Beds of the form indicated also possess another enormous advantage, especially near towns where land is scarce and consequently dear—viz., they just double the cultivable surface of the ground, for while the width of the ground actually covered with manure is only $2\frac{1}{2}$ feet, the two sloping sides of each bed of the height named obviously present a surface of 5 feet; or to show the increase of surface more fully, suppose an acre is occupied with beds of an aggregate length of 1936 yards and of the width stated, they would only cover 1613 square yards, while at the same time they afford a surface for Mushroom-production of 3226 yards without including the 6-inch space at the top of the beds. Thus we have an exception to the old axiom relative to the "increase of the population while the land remains stationary." It is certainly not "stationary" when devoted to this system of Mushroom culture, for, instead of the normal surface per acre of 4840 yards, we produce and utilise a surface of 5243 square yards. It is owing to this fact in a great measure that the value of an acre of Mushrooms becomes so extraordinary.

It is not suggested that good crops of Mushrooms cannot be had from larger beds than above indicated. Great quantities are grown on beds ranging from 3 to 4 feet wide at the base and correspondingly high; but beyond all doubt beds of the first-named dimensions properly made of suitable material contain all the essentials for an abundant supply of Mushrooms; and when manure has to be purchased these comparatively small ridges have been proved to be the more economical and profitable. If the manure is of inferior quality and not of a nature to produce and retain much heat, then larger beds are advisable, but with good manure properly prepared the ridges above recommended are sufficiently large for producing heavy crops of Mushrooms during the winter near London. In the north, and especially when manure is abundant, larger beds may be advisable; indeed they are employed with remarkable success at Burghley. The size of the ridges for certain positions and under varying conditions can soon be determined by those who earnestly attempt this, the simplest and best of all methods of Mushroom culture. But whatever the size of the beds may be, let the sides be as steep as possible, firm and

smooth. It is by making the ridges too flat and loose, admitting the rain, that many failures have occurred, and thus a system has been condemned when the operators and not the system have been really at fault.

MAKING THE BEDS.

In building a bed for the first time the workman would probably find a few guide sticks useful. If he has two a yard long each, inserts them $2\frac{1}{2}$ feet apart and just 6 inches deep, draws the tops within 6 inches of each other, he has an outline section of the bed. A few sticks thus arranged at intervals would form a sure guide. He would, however, quickly learn to dispense with them, and only need a line stretched along one side to work by, the manure being wheeled on the other, which is made straight without difficulty, the eye being the sole guide, as a line, as will be apparent, could not be kept clear. The work of building should be done quickly, yet well, the material being thoroughly shaken out during the process and pressed together



Fig. 91.—Mushroom bed.

very firmly. In addition to its being heavily beaten with forks it should also be trodden down at the least twice, once when a depth of about 18 inches has been packed together, and again when the ridge is 3 feet high; this will bring it down to 2 feet, the remaining 6 inches being made firm with the fork. The sides must be also beaten quite firm, and then dressed or combed down. When finished they will resemble a closely thatched roof in miniature, and like the roof will throw off the rain. This is important, and the necessity is now seen for having a good proportion of decayed straw; beds made wholly of the orthodox horse droppings would inevitably be saturated and spoiled.

A bed made as described is, when finished, a work of art, at least so a good workman would regard it. An example is represented in fig. 91 of a well-made bed, which, as will be seen, is perfectly straight and clear in outline. Such a ridge made quite firm, indeed almost hard, is practically impervious to wet, and when well cased with soil and covered with litter is capable of retaining sufficient heat for the growth of the mycelium and the support of a heavy crop of Mushrooms. The bed is shown with lumps of spawn inserted and partly cased with soil.

To prevent the bed heating too violently and drying

in the centre too much, holes should be bored with an iron bar from 9 to 12 inches apart along the ridge to nearly the bottom of the bed, and a few sticks should be left in the bed to test the heat at any time. If the bed is made as firm as it ought to be, sticks cannot well be driven down, hence the use of the iron rods, the necessity for which indicates clearly that the ridges should when finished be very firm indeed. A few of these sticks left in the beds will on examination indicate the temperature. The ventilators are often left open for some time after the ridges have been spawned and cased; they can be closed at any time by simply pressing in the soil.

It is not usual to finish Mushroom beds or ridges so artistically as in the example submitted; but it is desirable that this and all work should be done in the best possible manner. The difference in cost between doing work slovenly and finishing it neatly is very slight, and the advantage in the end is in favour of the skilled workman. Unless a man, in whatever he is engaged, takes pride in his work he will never excel, and it would be greatly to our advantage as a nation if every workman would habituate himself to complete whatever he had in hand as if competing for a prize; a higher standard of excellence would then soon be attained, and British workmen would maintain their supremacy in the competition of the world.

—J. WRIGHT.

(To be continued.)

ZONAL PELARGONIUMS IN WINTER.

WE cannot have the houses too gay during the dull winter months. During the summer months our gardens are sufficiently bright, perhaps too much so to suit all tastes, and it is a relief to turn to the houses where foliage plants and Ferns are in the ascendant. The case, however, is very different, say in November and December, and at this season a group of Pelargoniums or single specimens with some other decorative plants seldom fails to be attractive. I have a great partiality for them, especially when flowered in comparatively small pots. They are of easy culture, but at the same time they must be specially prepared. It is true under very favourable circumstances they will flower continuously for twelve months or more, but in most instances plants that are allowed to flower in houses or otherwise throughout the summer months are of little value for winter. We strike a batch of cuttings in heat during April, usually in well-drained 8-inch pots and on a slightly warmed flue. As soon as struck all those of which we have abundance are pinched back rather closely, and when they start afresh are potted off singly into 4-inch pots, and kept growing in a warm pit. The cuttings of varieties which we are anxious to increase are allowed to grow till their tops are long enough for cuttings, these being struck in heat as before, while the cut-backs are, when breaking afresh, treated similarly to those pinched back. Had we not a slightly heated pit, the shelves in a greenhouse would be utilised for the young Pelargoniums. During May we again pinch back the now freely growing plants, and when breaking again give them their final shift into 8-inch pots, and keep them under glass till established, when they are placed in a sunny open position on ashes. If not sufficiently bushy they are pinched once more, strong leading shoots being especially prevented by this treatment.

Those, however, we find most serviceable are struck at the present time and flowered in much smaller pots. Sturdy end shoots are selected and dibbled in singly into 3-inch pots, placed on a warm greenhouse shelf, and watered rather sparingly till struck. When this is found to be the case they are pinched, and in a few days those breaking most freely are shifted into 5-inch pots, the remainder flowering in the pots in which they were struck and placed in the open near to the first batch. Although they will grow in almost any kind of soil I ought not perhaps to omit mentioning the compost most suitable. Grossness should be avoided, but the other extreme is equally as objectionable, and to insure robust yet floriferous growth we employ a compost consisting of two parts good loam to one of old Mushroom bed refuse passed

through a rather fine sieve, adding road grit freely, and ram this extra firmly when potting.

During the summer months all the bloom is pinched off as fast as it appears. The plants are never allowed to become very dry at the roots, and rather than lose any of the foliage or for it to present a starved appearance, unless this should be the result of over-watering, an occasional supply of weak liquid manure is given. Before a severe frost is anticipated, or when the Salvias and other tender-flowering plants are housed, the Pelargoniums are placed under glass. They are soon attractive, but must not even then be expected to flower continuously unless their subsequent treatment be favourable. A damp unheated structure is not suitable for them, neither should they be crowded by other taller plants. What they really require is a light airy structure, the hot-water pipes of which are always warm. Heat and moisture cause an objectionable strong growth; but a warm dry atmosphere, which can be maintained with the help of the hot-water pipes and the upper ventilators whenever the external temperature admits, insures robustness and abundance of trusses. The plants to be disposed thinly, and watered sparingly—that is to say, only when rather dry, and to receive a little liquid manure occasionally. These necessary conditions may appear rather difficult to meet, but where, as in our case, the boilers have to be kept going to heat other houses, the extra expense in the way of fuel is trifling, and the same atmosphere and temperature are also suitable for Roses, Carnations, Primulas, and Cyclamens, as well as hardwooded greenhouse plants.

I have grown a number of varieties, but for flowering in the smallest pots I find none to equal Vesuvius, White Vesuvius, Salmon Vesuvius, and the semi-double Wonderful, and all are well adapted for growing into fair-sized specimens. The best white for larger pots is White Princess. This variety is of rather vigorous habit, but is remarkably floriferous, and yields quantities of large trusses throughout the winter. Master Christine is an effective pink variety, and a still better variety, especially in point of colour, is Mrs. Leavers. Of doubles I find Rosa Bonheur, rose; Madame Thibaut, pink; Guillon Mangilli, crimson; Louis Buchner, salmon; and Madame A. Baltet, white, all good winter-blooming varieties. Candidissimum plenum much resembles the latter in habit, but has the advantage in point of clearer whiteness. Ernest Lauth, magenta, is a free-flowering variety, but grows too vigorously to be associated with any of the foregoing.—W. IGGULDEN.

DESIRABLE EARLY VEGETABLES.

Cabbages.—Early Heartwell sown in a cold frame, or even in a box, in front of a south wall the last week in February, transplanted after assuming the rough leaf, and put out now, will be fit for use in a comparatively short time—much quicker than any other variety I know. The market gardeners here have a variety of the Early York called Wellington, somewhat larger and not so early or so tender as Heartwell, the seed of which they endeavour to keep pure by saving it themselves, but as other varieties are grown in the vicinity they often fail. The weather was very dry and warm during the past fortnight; now there has been a heavy rainfall, and as the temperature of the soil is much above the average of similar dates other years, every garden crop will be early.

Cauliflowers.—Plants of Early London nursed through the winter and transplanted in March on a south border are now forming heads with me, but it is only fair to say a friend of mine sowed seed of Carters' Early Defiance in a frame, transplanted, and hardened off in March, and has his Cauliflowers as advanced as mine without any winter caring. I have the same variety, but not so forward. At Marlfield, where the vegetable garden is closed completely against the north or north-east winds, Cauliflowers were wintered last year in the open border, but the winter was exceptionally mild. The point is, however, worth consideration whether winter nursing is necessary.

Broccolis.—I cannot remember any season when these were so abundant, probably owing to the fore-mentioned mild winter. I have been this week transplanting Walcheren sown last March to take the place of the varieties of the last mentioned. If considered under this head it is one of the earliest, but it may fitly be included among the Cauliflowers. The best gardeners here try to keep up a succession in this way the whole year round. Equally advanced in size is Snow's White Winter, but it will not come to maturity until late autumn or early winter. Last year the White and Purple Sprouting were found very useful and accommodating. Carters' Summer Broccoli and Cattell's Eclipse are not only the hardiest but amongst the latest, and may yet be sown.

Celery.—I am now making trenches, placing in 12 inches of old frame manure, and scattering salt over that, as the plants should be grown vigorously. For my limited supply I prefer Crimson Incomparable, as do most of my neighbours.

Little Pixie Savoy, Brussels Sprouts, and Kales should not be forgotten for winter use. Potatoes and other garden crops will be earlier than usual.—W. J. M., *Clonmel*.

FLOWERS IN SPRING.

FROM the notes in our Journal by so many contributors it is evident that old favourite plants are rising in estimation again—a most satisfactory sign. Your correspondent, Mr. J. Gadd, Belhus Park, speaks favourably of Daffodils making a grand display, and in borders of such extent as he describes herbaceous plants may be grown to perfection. As a successor to the Daffodils named I can conceive of no brighter gem than *Caltha palustris plena*. In patches a few feet apart in a border not less than 100 yards in length they are simply grand. Being of bright orange colour they have a telling effect, and ought to be much more cultivated than they are at the present. They are easily increased by division after flowering, and they enjoy partial shade and moisture, but they are not particular in this respect. By the margins of water and shady walks in open spaces they prove some of the finest spring-blooming plants we possess. *Lithospermum purpureo-cæruleum* is another of the choice spring-flowering plants, and when seen in masses it will not soon be forgotten. Why it is so seldom met with I am at a loss to conceive. *Lithospermum prostratum*, too, as an edging plant must be seen to be appreciated. *Erinus alpinus* and *E. alpinus alba* are useful for edging, and beautiful as useful. They are easily increased by division and seed. *Collinsia grandiflora* is one of the most effective plants we have for the spring garden. Sown in autumn and planted out in early spring, no plant can be more beautiful. *Erysimum Perofskianum* treated in the same way produces its bright orange flowers freely, affording a fine contrast. *Saxifraga granulata* and *granulata plena* are very desirable for spring gardens. *Erysimum pulchellum* is a fine plant for bed or border. It is of dwarf compact habit, its pale sulphur-coloured flowers lasting long. *Limnantes Douglasi* is very effective for beds and borders as an edging plant, is very fine, and should be sown late in the autumn. Plants of *Centranthus macrosiphon* from autumn-sown seed are affording us a fine display. Among our many favourites some are quite as interesting without their beautifully coloured flowers as others are with them, and one of the most beautiful at the present time without flowers as an edging plant is *Polemonium cæruleum variegatum*.—VERNA.

CORDON FRUIT TREES.

PRUNING in the culture of pyramids and bushes is a relative matter depending entirely upon their general treatment, but in that of the cordon it is decidedly as positive as is the fact that lateral growth must be restrained, rendered fruitful, and kept so principally by judicious pruning. Granting this fully, I am nevertheless by no means disposed to insist upon the necessity of an inflexibly rigid and elaborate system of close pruning, such as is insisted upon by Du Breuil, simply because cordons are maintained in a healthy fruitful condition without it. Beginners, too, are apt to be puzzled and alarmed at such very elaborate details, which to them seem to stamp the system with difficulties demanding high professional skill, and more time and thought than they can well give. No doubt the French system if followed in its integrity gives fruitful spurs arranged with mathematical precision and neatness, but then in order to keep them healthy it has been found necessary to annually cut off 16 inches of the top of the stem, which induces new growth at that joint, and a consequent free circulation of sap throughout the stem. This annual sacrifice of such a considerable portion of the stem is so objectionable that the question naturally arises, Is it unavoidable? So far as my own experience goes it enables me to answer that it certainly is uncalled for in the treatment of healthy young cordons in full bearing—that is to say, bearing as much fine fruit as is consistent with the size and strength of each tree—a very different matter to crowded clusters of fruit, small and often misshapen, simply for want of judicious thinning. I have many cordons which bear fruit abundantly, and yet have sufficient wood growth upon the spurs to maintain the requisite balance of health with fruitfulness, and so long as this continues there will be no shortening of the stems.

Let us now follow the pruning of a cordon from infancy to maturity. Taking a maiden like fig. 65, on page 323, it is shortened by about one-third—a little less or a little more—according to its strength at the time of planting. This rule of

pruning when planting is inflexible. It never fails. I have long practised it upon all sorts of trees—standards, dwarfs, bushes, pyramids, espaliers, and cordons, making no distinction, but treating all kinds of fruit alike—with invariable success, the result of the pruning being seen next season in a vigorous leader and sturdy lateral growth, which is allowed to make four or five joints before it is nipped off to two buds to lay the foundation of the spurs upon which fruit will eventually come. Very strong maidens are thus treated twice during the first season of growth after planting, and tip of the leading shoot is also nipped off once or twice at about a foot in length, perhaps a little longer if it is very vigorous and its buds very prominent. Very vigorous leading growth sometimes puts forth laterals without being stopped at all, but such instances are exceptional, and are only mentioned to show that every tree must be treated solely on its merits and not by line and rule. A tree of weakly growth or at all delicate is left free to grow untouched during the first year, and extra care is taken to assist it by supplying water or sewage as it appears to require help. In soils much affected by drought mulching is of much benefit. In all well-drained soils drought should not be waited for, but mulching should follow the planting immediately as a necessary safeguard for the lacerated roots. Mulching indiscriminately has been called in question; but if it be conceded that

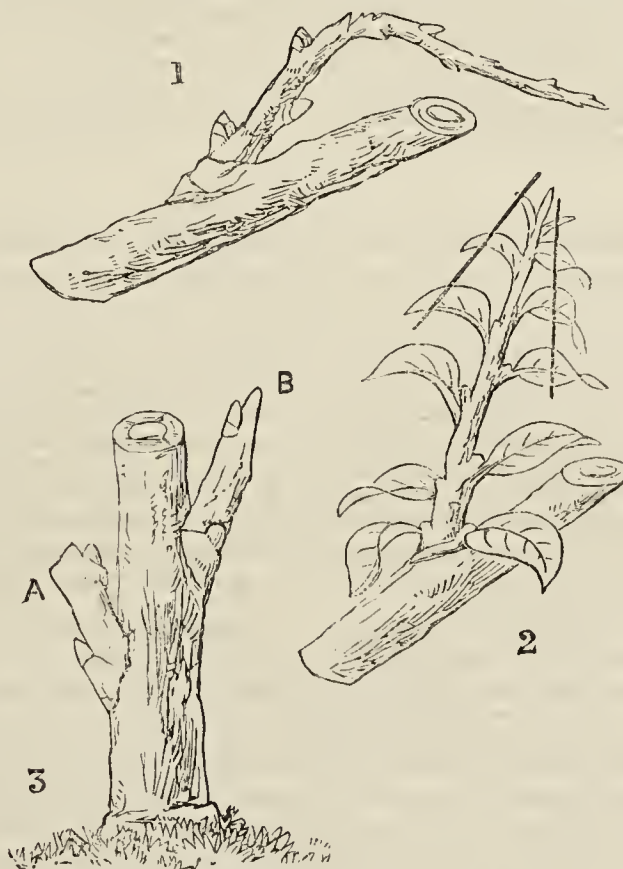


Fig. 92.—Pruning and Checking Growth.

drainage and specially prepared stations in faulty soil are fundamental points indispensable to successful fruit culture, then mulching may be insisted upon as of equal importance.

When the leaf falls in the autumn of the first year there will be a little work for the pruning knife in shortening the last growth to two buds, and the advantage of leaving the late growth unchecked will then be visible in its firm texture, well-matured bark, and plump buds. In the following summer after pinching the early growths twice back to two buds, but not until they have grown to a length of 5 or 6 inches each time, we go a step further with trees in full health and vigour by fracturing the third growth early in September in the south, and a fortnight sooner in the north to render the buds at the base of each shoot more prominent than they would otherwise be, and to hasten the development of fruit buds as in fig. 1, especial care being taken not to fracture the shoot so severely as to prevent the flow of sap to the tip, or the basal buds will push an incipient growth and be spoilt. Some practitioners are so fearful of this happening that they do not break the shoot, but simply twist back the tip, which is not nearly so effectual as the fracture. A useful check is also sometimes given by clipping the upper leaves (fig. 2), in order that, the elaboration of sap alone continuing unchecked in the lower ones, a more full development may be imparted there.

In the subsequent winter pruning especial care is taken to cut across the shoot with a very slight slope just above the bud as at A, fig. 3, thus leaving all the tissue near the bud to sustain it

fully when growth begins again. But too often this is not attended to, and the shoot is hacked off with a long slope, as at B, fig. 3, to the serious detriment of the future shoot. These are some of the minor details which seriously affect success and must have due attention. There must be no foolish hacking and hewing in fruit culture, but one should be able to give a reason for every cut of the pruning knife. Watchfulness and care will soon enable one to work with confidence and to aim at results which are worth our best efforts, and are by no means difficult of attainment to a really earnest man.—EDWARD LUCKHURST.

QUEEN WASPS.

Now that "Y. B. A. Z." has explained that he wished me to say what I believed to be the natural history of the common wasp, I must decline to enter into so large a subject which I have never studied or professed to study. My first letter simply gave the result of sundry observations on one point in it, and I see no reason for going further afield.

As "Y. B. A. Z.," when he says "that every wasp appearing in spring is a fertilised queen," meant that a certain number (large or small) were unfertilised, and that the said unfertilised queens do appear in spring, I fear that his words and the meaning he now attaches to them are self-contradictory. I do not doubt that the spring queens are the parents of the autumn nests, nor have I ever said anything that would seem to question it. I never took a nest in winter, nor do I remember ever seeing a queen before (about) March 16th, but I do not see how this is relative to the discussion.—DUCKWING.

FERTILISERS—POTASH, SODA, AND MAGNESIA.

APOLOGIES and recrimination in the course of a discussion are apt to impair its usefulness, and to be tedious to a reader who wants to learn the truth and cares for nothing further. In the numerous ramifications of the discussion between "SINGLE-HANDED" and myself there is already a danger that the main points may be lost sight of, and I will refrain from importing extraneous matter as much as possible. I sorrowfully admit that, like many others, I am too liable to a want of proper attention in reading an opponent's statements, and very often misinterpret his views without intending to do so; and I hope that "SINGLE-HANDED" will accept this general confession, and allow me at once to go to the matters on which I must still sign myself, as hitherto, an inquirer.

Your correspondent adduces, as an illustration of his theory, a case in which an interchange of acids between salts of ammonia and potash must have taken place. This, though a good exemplification of chemical reaction, affords no proof of the necessity of the conversion of sulphate of potash into carbonate in order that the potash may become fit for the nutrition of plants. At page 284 "SINGLE-HANDED" expresses surprise at my statement that agricultural chemists do not return, as a matter of course, the potash present as having a money value in an analysis and valuation of a manure; but in his last letter he affords a strong confirmation that my statement was correct, for in advocating the importance of potash as an ingredient of manure he complains of the tendency among manufacturing chemists "to place perhaps too little value on everything but nitrogen and soluble phosphates." This tendency is the natural result of the practice of the agricultural analytical chemist on which I remarked; and it was because I thought that there was a tendency on the part of "SINGLE-HANDED" to place an undue value on the importance of adding potash to farmyard manure as a general practice that I entered upon this discussion. Dr. Voelcker's report that crude potash salts had been sometimes harmful in common with extracts, showing that they were sometimes beneficial, were quoted, I again repeat, solely to show that "SINGLE-HANDED" was scarcely justified in claiming Dr. Voelcker's support for his views. Let me ask "SINGLE-HANDED" to read again my letters at pages 325 and 326, and at page 381.

I now pass on to the Cork experiments. I admit readily that the chloride of sodium present with the kainit used as manure may have contributed to the surprising result, but I maintain that the beneficial effects derived from the chloride of sodium were probably small in comparison of those of the potash and magnesia of the kainit; first because the ash of the Potato plant contains very large quantities of both potash and magnesia, and secondly because equally successful results were obtained with *finus*, of which the dominant constituent is phosphate of magnesia, a small proportion only of potash being present in the manure, though apparently sufficient for the wants of the plant. I am puzzled as

to what "SINGLE-HANDED" means when he says (page 425), "I ventured to doubt that the potash in the kainit had anything to do with the manure." On referring to page 368, as he requests me to do, I can discover nothing to help me to understand his doubt or his line of argument. I am equally perplexed with what he says respecting the supposed injurious effects of chloride of magnesia. At page 368 "SINGLE-HANDED" observed in the P.S. of his letter, "'INQUIRER' quotes the words of Dr. Voelcker to show that potash salts are sometimes hurtful," an intention which I have more than once disclaimed. "Are we to attribute such effects to the potash or the chloride of magnesia? We believe the latter and not the potash does the mischief." He says that I have not apprehended his meaning in the matter of his query, and that "it was a query and not an assertion." But surely a query of this kind, coupled with an expression of his own belief in regard to the trustfulness of magnesia chloride, is some justification of my remark that he "apparently shares in the popular view of the bad qualities of magnesia as an agricultural application."

I have only one other observation to make. "Magnesia," as "SINGLE-HANDED" observes, undoubtedly "is one of the recognised wants of plants;" but it is by no means an addition universally recognised as advisable in the manufacture of manures, any more than is the necessity of adding potash recognised. The soil is supposed to be sufficiently provided with these ingredients, especially with the latter. This I believe to be a serious mistake.

Referring, again, to the letter of your correspondent "B." at page 398 respecting the use of chloride of potassium in agriculture and the preference shown to that form of potash as compared with sulphate. There is one disadvantage attending the use of the former mentioned by Liebig in his "Laws of Husbandry" which calls for some attention in estimating the merits of the two salts.

In cultivating by the system of farmyard manuring and rotation of crops it is found that for a long time the soil becomes richer in potash, &c., after each rotation, and more rank and prone to grow weeds. The most noxious of these are the wild Radish, the Corncockle, the Cornflower or Bluebottle, the German Chamomile, and the Corn Chamomile. All these plants contain in their ash as much potash as is found in Clover and 7 to 18 per cent. of chloride of potassium, a salt which forms one of the principal constituents of the urine of animals, and which is brought to the field in the farmyard manure.—INQUIRER.

AS "INQUIRER" has settled the question of potash as a chloride being the cheaper form, I will only shortly follow "SINGLE-HANDED" in his remarks in last week's issue. 1, I have all along been aware of the practical inability to procure any manufactured manurial agents at the per-centage they ought to be when pure. 2, I quoted an assertion of Ville's merely to show the value that may be placed on such a quotation as the one "SINGLE-HANDED" made use of. The fact that Ville employed irrigation and the difference of climate must in fairness be taken into account when judging the value of his propositions. 3, "SINGLE-HANDED" is surely incorrect in stating that chemists conclude soda to be unnecessary as a plant food. That plants obtain a sufficient supply of soda without its being necessary to apply it manurially is quite another question, and has for many years been allowed, and your correspondent has recommended soda as a manure for Strawberries! 4, The hypothesis as to common salt is very plausible, but on a bare piece of gravel, for instance, heavily and regularly salted over a long series of years, where are the "unavailable supplies" to come from? I may have something to state with regard to effects of different manures on various crops later on. Meanwhile I do not see that it will be useful to prolong the discussion.—B.

MR. PENSON'S AURICULAS.

I WOULD much like to be allowed to contradict a statement made by "D., Deal," in his notice of this collection of Auriculas—viz., that Mr. Penson's purchases were mainly made from me. I do not sell Auriculas to amateurs, and told Mr. Penson so, but I let him have four plants, which he could not get elsewhere, as a favour, and that so recently that he cannot have propagated a single offset from one of them. Your Journal is so widely read by amateurs to whom I have refused to sell plants, that if you would allow me to state once for all that I do not sell Auriculas, it will save me a great deal of trouble replying to unnecessary correspondence. I am glad to agree with "D., Deal," in one thing, and that is in his high opinion of Mr. Penson's plants. They are exceedingly well grown and flowered, and the collection contains some really choice varieties, and it is very pleasing to state that other amateurs are springing up in the south who are

equally enthusiastic in their love for this modest Alpine gem.—
J. DOUGLAS, *Loxford Hall, Ilford, E.*

SEASONABLE NOTES.

ECONOMY IN LIFTING EARLY POTATOES.

PLENTY of new Cabbages at Easter, and abundance of early Potatoes from the open borders at Whitsuntide, are considered satisfactory in some establishments; but now and for the next few weeks many of the Potatoes which will be lifted from the ground will be very small and useless for the table. This is a great loss, especially in small gardens where large quantities cannot be grown, but it need not occur to a great extent if a little extra labour be devoted to the digging. Anyone removing the soil near the Potato stems may observe some tubers of a good size and many small ones among them. To leave these until they become large is true economy, but the large tubers need not be left. When the soil is cleared from them they may be detached from the plant for use, replacing the soil over the small ones, and in a few weeks they may all be lifted, when they will be much larger in size and altogether more profitable. To lift some hundredweights at a time in this way might not always be practicable, but for a small dish daily the advantages must be apparent.

CUTTING ASPARAGUS.—When to stop this operation is an oft-asked question, and various answers might be given, as much depends upon the season and, above all, the condition of the roots. As a rule, and with everything in fairly good condition, cutting may begin early in April and be carried on until June. If the first growths are allowed to run up many of the buds then dormant will remain so, but by cutting the growths as they become large enough all are induced to start, the only care being to avoid cutting the last of the growths if there are no more buds. This may be guessed by considering the quantity that has been cut.

TOMATOES BLIND AND DEFORMED.—In growing Tomatoes under glass many of the blooms which open never form fruit, and what might be expected to form great clusters only appear as small bunches. There are at least two causes for this, one being allowing the plants to become too dry at the roots when in bloom, and the other is having the atmosphere in which they are growing too damp. Many failures in Tomato-growing may be attributed to these conditions, and so many deformed fruits. Even specimens are those most in favour; but many fruits, especially with some varieties, are the reverse of this, and I have always observed that those growing in low damp pits were more deformed than those in a dry warm atmosphere. This appears to me to be the secret of securing well-shaped Tomatoes.

PLANTING OUT CELERY.—Much of this will now no doubt be ready for the trenches, but if the weather is as dry everywhere as it is here planting will have to be done with the utmost care, and abundance of water must be applied immediately afterwards. Being able to secure much soil with the roots of all plants at such times as this is a great advantage. Has anyone used sawdust for earthing Celery, and with what results?—J. MUIR.

KINGSTON AND SURBITON HORTICULTURAL

SHOW.—MAY 31ST AND JUNE 1ST.

UNDER distinguished patronage and judicious management the Kingston Society has gradually gained an important position amongst other similar institutions in the neighbourhood of London, and the eighteenth show, held last week, well maintained its prestige by presenting a varied and excellent display. The Drill Hall was this year selected for the purpose, owing to some difficulty in procuring a suitable site for tents at a convenient distance from the town; but although the arrangement was as good as could be desired, and the exhibits so numerous that some had to be refused, yet a summer flower show does not seem so attractive in a building of that character as in marquees out of doors, especially where a picturesque garden is generously placed at the disposal of a society. When this is the case and the weather proves fine visitors have a double attraction, and the receipts are proportionately increased. At Kingston, though the weather smiled upon them, the visitors did not assemble so numerous as such a beautiful show merited; but in the evening of each day there was a fair attendance. Much praise is due to the Secretaries—W. Clay, Esq., and Mr. J. W. Moorman—for their exertions to render the Show successful, and also to Messrs. Puttock and Woodgate, who were entrusted with general arrangement of the exhibits, and performed their duties admirably.

In the plant classes the chief was that for nine stove and greenhouse plants, in which three very creditable collections were staged. Messrs. B. Peed & Son, Norbury Nurseries, Streatham, gained the principal award with even, healthy, and well-flowered specimens of

medium size. Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, took the second place with very praiseworthy plants, amongst which his handsome examples of *Cypripedium Stonei* and *Gleichenia dicarpa longipinnata* were especially noteworthy. Mr. J. A. Hinnell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, was third. In the smaller class for six Mr. J. Child won first honours, followed closely by Messrs. Peed and Hinnell; while for four Messrs. J. Childs of Claygate; Croxford, gardener to Mrs. Dunnage, Allbury House; and Attrill, gardener to Sir J. C. Freake, Bart., Bank Grove, Kingston, were the prizetakers.

Groups of plants arranged for effect also constituted an important feature, very bright, and in some cases extremely tasteful, but in the majority of the larger groups there was a prevailing deficiency that in a great measure destroyed their beauty—namely, a too evident thinness, all the pots being very conspicuous. In the first-prize group of 100 square feet, arranged by Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, this evil, however, was most carefully avoided, a foundation of vigorous *Adiantums* forming a pleasing groundwork, from which arose neat Palms, Crotons, and *Dracaenas* amongst the fine-foliage plants, with *Pelargoniums* and *Begonias* predominating amongst the flowering specimens. A tasteful, free, and beautiful combination was effected, and well merited the leading award. Messrs. Peed & Son, and Stevens of Putney, followed in the larger class with well-grown healthy plants. The competitors in the other for a group occupying 50 square feet were Messrs. Brand, gardener to W. Clay, Esq., Lime Grove Road, Kingston; Croxford; and W. E. Clark, gardener to A. Nagle, Esq., Bijou Cottage, Kingston, who secured the prizes in that order with compact, neat, and bright groups.

In the miscellaneous classes *Fuchsias*, *Gloxinias*, *Calceolarias*, *Achimenes*, *Pelargoniums*, *Tuberous Begonias*, and *Hydrangeas* were all well shown, and contributed largely to the display. The leading collection of six *Calceolarias* was particularly good, the plants compact and healthy, with fine heads of flowers; Mr. J. Buss, gardener to A. S. Price, Esq., Ewell, who followed, also had some satisfactory plants in that class. *Hydrangeas* were admirably shown by Mr. Attrill, his specimens being in 32-size pots, and having single globular heads of flowers 1 to 1½ foot in diameter. Mr. Joshua Child took the second place with healthy plants, each bearing several small heads of fine flowers. The best *Fuchsias* were from Messrs. Beckett, J. Childs, Otley of Surbiton, and Watson, Norbury House, Kingston, the first-named having excellently flowered, tall pyramidal specimens, *Forget-me-Not*, *Charming*, and *Rose of Castile* being the most noteworthy varieties. The winning exhibitors of *Begonias*, *Gloxinias*, *Pelargoniums*, and *Achimenes* were Messrs. J. Sallows, gardener to J. J. Flack, Esq., Twickenham; Beckett, J. Child, Buss, and McPherson, who maintained their credit admirably. Roses were not extensively represented, but were of fair quality. Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston, had the best plants, large and vigorous; Mr. J. W. Moorman securing a similar position in the class for twenty-four cut blooms, which were neat and fresh. Ferns and *Selaginellas* were exhibited by Messrs. Hinnell, Stevens, Attrill, Watson, Waite, and Otley, who staged very healthy examples; table plants being also largely and well shown by Messrs. Buss, Brand, and Stevens.

Table decorations, bouquets, buttonholes, and cut flowers were abundantly shown, Messrs. Orchard and Brand, Mrs. Clay, Mrs. Hardy, and Miss A. Moorman being the chief prizewinners.

Vegetables were most satisfactory, the premier collection from Mr. E. Beckett including very fresh and healthy samples of *Globe Artichokes*, *Canadian Wonder Beans*, *Excelsior Tomatoes*, *Woodstock Kidney Potatoes*, and *William I. Peas*. Messrs. C. Waite and J. Starr, gardeners to W. E. Edgar, Esq., Coombe Warren, who secured the other prizes, also had good collections. Fruit was rather poorly represented.

PLANTING OUT WINTER-FLOWERING PLANTS.

THE practice of planting out winter-flowering plants during the summer months has been proved after several years' experience to be a saving in labour to the gardener and beneficial to the plants. When I commenced this system ten years ago it was as much to save work as for any other reason; now I would insist on the practice because it is a thoroughly good one in itself. As the time is now at hand when plants may be advantageously placed out, I send a few notes on the subject, with the hope that they may be useful to any who have not as yet tried this system. The plants which I have grown thus have been the following:—*Richardia æthiopica*, late-flowering *Chrysanthemums*, *Solanums*, *Eupatoriums*, *Bouvardias*, *Cyclamens*, several kinds of *Begonias*, *Primulas*, *Cinerarias*, *Zonal Pelargoniums*, *Astilbe japonica*, and *Deutzias*, while many others may be grown on the same system with equally good results. *Eupatoriums*, *Bouvardias*, *Begonias*, and *Cyclamens* have been grown in frames, not necessarily under the protection of glass, but we found it of benefit to have the sashes to place over these at time that protection appeared of advantage. The *Eupatoriums* and *Begonias* are generally from spring-struck cuttings, the other two plants are of greater age. The frames are in use previously

to these being put in for growing-on bedding-out plants, and are planted out immediately the latter are removed to the flower beds. I do not like a rich soil, a medium in which a sturdy robust growth is of preference to a soil which forces on the plants to make a coarse growth. The Bouvardias and Eupatoriums are frequently pinched to ensure a thoroughly bushy growth, and water is given as required. The other plants named are grown in the kitchen garden. In our case no special preparation of the soil is made, as we find that a soil which produces good vegetables is equally well fitted to produce healthy flowering plants.

The time we plant out is about the beginning of June, the second week generally. The plants have all been inured to stand the weather by a three-weeks exposure in a warm position out of doors. The *Richardia* is divided before planting, two strong growths being left on each piece divided; as the plants are put out the foliage is secured to a strong stick. *Astilbes* are also divided before planting out. *Deutzias*, *Solanums*, *Pelargoniums*, *Primulas*, and *Cinerarias* (both of the latter old plants) are merely turned out of their pots. *Chrysanthemums* are plants which are struck in April and grown in the cutting pots, from whence they are turned out into the garden. During the summer these are supported by tying the plants to lines of string fastened to strong sticks set a few yards apart in each row. I invariably obtain the latest supply of bloom from *Chrysanthemums* treated as above. If planted in dry weather each receives a sufficient quantity of water to give it a start. The plants are lifted about the end of September, and are half lifted about ten days earlier in order to check growth. *Callas* are grown in 9 and 10-inch pots, the same plants producing flowers from November till they are divided the following spring. *Chrysanthemums* are lifted and again planted in a cool house. *Astilbe* and *Deutzias* are as a rule left until shortly before they are required for forcing. All the others are, after being potted, kept in a cool corner out of doors until slightly established in pots, which are invariably small for the size of plants, and are then drafted to houses without any injury by tagging.—B.



"X., North York," writes:—"It has been announced that 95,000 persons visited the ROYAL GARDENS, KEW, last Whit-Monday—an astonishing number, and I should like to know what system of computation or registration is adopted, for it appears almost incredible. I have heard many doubts expressed concerning the rather alarming statements in the annual totals of visitors which appear in the Kew reports."

— A BEAUTIFUL Gentianaceous plant is *EXACUM MACRANTHUM*, which is still rarely seen, though it has now been in cultivation about thirty years. It has fine rich purplish blue flowers, somewhat resembling some of the *Solanums*, but especially *E. amazonicum*. It has long yellow anthers, and ribbed bright green opposite leaves, its general appearance being rather suggestive of the *Melastomads*. It is found at elevations of 6000 feet in the mountains of Ceylon, and seeds were first sent to this country about 1852. It thrives well in a stove or intermediate house.

— THE Antwerp Rose Society proposes holding an INTERNATIONAL CONGRESS OF ROSARIANS on the 13th of August. Subjects akin to the following will be discussed:—(a) The best mode of organising Rose exhibitions; (b) Rose synonyms in catalogues; (c) The possibility of checking the introduction of Roses of inferior merit; (d) The formation of an International Rose Society. These subjects have an international importance, and it is to be hoped that some of the members of the Committee of the National Rose Society will respond to the invitation of the Antwerp President (M. Lenaerts), and represent Great Britain at this friendly gathering. Visitors will see not only an International Exhibition of Roses, but also the fêtes connected with the development of the magnificent line of quays at Antwerp.

— WE have received the schedule of the SOUTH SHIELDS CHRYSANTHEMUM AND WINTER FLOWER SHOW, in which good prizes are offered in thirty classes. It would appear from the prospectus that *Chrysanthemums* are not by any means so largely grown in the north as in the south, and a strenuous endeavour is being made to extend and improve their culture in Durham. Influential patrons have been secured, and a practical committee formed for attaining the above object, and we trust their efforts will be successful. The first Show is to be held at South Shields on November 29th and 30th, Mr. Bernard Cowan being the Honorary Secretary.

— WE are informed that Mr. JOHN FLETCHER, FLORIST, OF MILLCAT HILL, NORTH BRIERLEY, near Bradford, died on the 24th ult., aged sixty-nine years. He was an ardent florist for upwards of fifty years, and grew in succession Tulips, Auriculas, Polyanthus, and Dahlias. Of late years he has confined himself principally to Roses, Pinks, Carnations, and Picotees. Of the latter he has left a good collection. He was well known as the raiser of several varieties of Carnations and Picotees, notably Mr. Fawcett, S.B.; Lord Derby, P.F.; Clipper, S.F. Mary Ann, R.F., &c. His death makes the third which has occurred amongst Lancashire and Yorkshire florists during the months of April and May, and florists generally have to deplore the loss of Mr. Woodhead of Shibden Head; Mr. Thomas Mellor, Ashton-under-Lyne; and now of Mr. John Fletcher, who will long be missed at the National meetings at Manchester. For the present we understand it is Mrs. Fletcher's intention to grow the plants, assisted by her sons, who during their father's long illness, aided by kind neighbours, have paid good attention to the plants. Descended from an old florist stock, Mr. Fletcher was esteemed by everyone who knew him, and it can be safely said of him that he never made an enemy or lost a friend.

— A SOCIETY has been formed in Cincinnati to promote the PLANTING OF TREES IN THE UNITED STATES. From the report of this organisation it appears that, owing to the marvellous development of the country, the woods and forests are disappearing at an alarming rate, the demand for timber being greatly in excess of the natural supply. As a remarkable fact in connection with the timber denudation, it was stated that 390,000 cubic feet of pine were consumed annually in the manufacture of lucifer matches alone.

— GARDENING APPOINTMENTS.—Mr. William Dumble, foreman, Rangemore Gardens, has been appointed gardener to C. Corbet, Esq., Adderly Hall, Salop. Mr. John Rudd, foreman, Rangemore Gardens, has been appointed Superintendent of the Burton-on-Trent Recreation and Cemetery Grounds; and Mr. J. Seward, late of Tooting, has been appointed head gardener to J. S. Clay, Esq., Ford Manor, Lingfield, Surrey.

— THE NUNEATON FLORAL AND HORTICULTURAL SOCIETY will hold an Exhibition of flowers, fruits, and vegetables in that town on Wednesday, July 5th. In addition to the Society's prizes in sixty classes several special prizes will be offered by Messrs. R. Smith & Co., Worcester; James Carter & Co., London; and Evans & Son, Oswestry.

— ALL who have an opportunity of doing so should visit MR. BULL'S EXHIBITION OF ORCHIDS in his nursery at Chelsea. The plants are arranged in a span-roofed house about 60 feet long, the central stage and the side stages being completely occupied by Orchids in flower, relieved by a few small Ferns and Palms. The effect of such an assemblage of plants in the finest condition and in choice variety is rich in the extreme. After passing through the avenue of Cycads and Tree Ferns in the winter garden the effect on entering the Orchid house is almost startling. The eye at first rests on a dense mass of *Odontoglossum vexillarium*, com-

prising some hundreds of flowers of various hues. Along the sides are gorgeous Cattleyas, *C. regina* being magnificent, the queen of the house, with which white forms of *C. Mossiæ* contrast effectively. Large arching spikes of *Odontoglossum Alexandræ* in great variety from almost pure white to deep pink; fine racemes of *O. citrosum*, red, pink, and white; rich *Masdevallias*; golden masses of *Dendrobium densiflorum* and *suavissimum*; *Lælias* in numbers; *Vandas*, *Tricopilias*, *Angræcum Lowi*; grand blooms of *Sobralia macrantha* nearly 9 inches in diameter; *Oncidium macranthum* and *concolor*—in fact, nearly all Orchids that flower at this season are represented, and a floral spectacle is produced that it is impossible adequately to describe. Nothing like it is ever seen at flower shows, and all who desire a treat in Orchids should see this remarkable display.

— It is announced that Miss MARIANNE NORTH'S GALLERY IN THE ROYAL GARDENS, KEW, will be opened to the public to-day (8th of June), and henceforward will be opened on each day at the same time as the gardens, the time of closing being regulated according to the season, like the houses and museums. It may be well to remind our readers that Miss North's superb collection of oil paintings, representing tropical plants and scenery in all parts of the world, was presented to Kew some time since with a handsome donation for the erection of a building to contain them. A site was accordingly selected near the Richmond Road, facing the temperate house in the pleasure grounds; a red brick oblong building of neat but unpretentious appearance has been erected there, and is now occupied with the collection. The apartment devoted to the pictures is nearly 60 feet long and about 30 feet wide, the walls for 12 feet or more in height being covered with the 620 paintings closely placed, all in neat black and gold frames, and plainly numbered. A catalogue, fully describing the scenery and plants represented, is being prepared, the first edition of two thousand entirely at Miss North's expense, the subsequent editions to be produced by the Kew authorities as required. This work we understand is being compiled by Mr. Hemsley, and will undoubtedly be a very instructive work. As works of art executed by a lady during eight years' travels in some of the most beautiful tropical countries, these pictures will possess considerable interest to the general public, but to the botanist or horticulturist they are especially valuable, their fidelity being astonishing, and the plants selected for portrayal are all either distinguished by their extreme beauty or rarity. Around the porches of the doors are wreaths of flowers and fruits most accurately painted, while in a small gallery at the upper part of the building are some larger pictures representing such remarkable plants as *Anthurium Andreanum* and *Aristolochia Goldieana* of their natural size.

— ACCORDING to the report of Mr. Payton, British Consul in Morocco, few countries can excel this part of North Africa for the production of GARDEN VEGETABLES. The markets, we learn, are plentifully supplied with good and cheap produce all the year round, a circumstance which is attributed to sedulous cultivation and the system of irrigation pursued in the market gardens around the large towns and cities. The cultivation of Potatoes is stated to be increasing every year. Last year their price was one dollar per cantar, or a fraction over a farthing a pound. Green Peas, which were very plentiful from the beginning of February to the beginning of May, fetched 11s. to 14s. the camel load, or about 4s. a hundredweight. The pods, we learn, were well filled with peas of small size and of fair flavour. Mr. Payton considers that fair English choice varieties of Peas would, with careful culture in the fertile soil of Morocco, be attended with "grand results." Fruits in general were also plentiful. Walnuts were sold at two-pence per hundred.

— It is too frequently a source of regret that LABELLING PLANTS AT HORTICULTURAL EXHIBITIONS is carelessly and in-

accurately performed, greatly to the disadvantage of the general public and unsatisfactory to horticulturists. Illegible writing and very irregular modes of spelling plant names often disfigure really well-grown collections, for competitors do not attach sufficient importance to nomenclature, though they may be sure that where two exhibits in the same class are very nearly equal in all other points the one that is most carefully labelled would be selected for the leading honours. At the recent Manchester Show we noted an instance of an excellent system of labelling that well deserves attention. This was in the handsome collection of hardy plants for which Mr. J. Broome of Didsbury was worthily awarded the chief prize; and though specially suitable for such plants, similar labels could be advantageously employed for many others. Neat stiff white cards $1\frac{3}{4}$ inch wide by $2\frac{1}{2}$ inches long were finely bordered with red ink near the margin, the popular or English name being written in red at the upper part of the card, next the botanical name with the authority and the most common synonym in black ink, and the geographical distribution below in red. For example, the well-known *Anthericum* was given in this way: "St. Bruno's Lily. *Anthericum Liliastrum* (Linn.), *Czackia* (Andr.). South Europe." Each card was inserted by the base in a ring of wire bent like a key ring, one end being free and placed in the apex of a neat green stake, which elevated the card sufficiently above the plant to be plainly visible without being too conspicuous. Considerable information can be thus conveyed, and much credit is due to Mr. T. Entwistle for the care he had bestowed upon his labels, which might furnish a good model for other exhibitors.

— WRITING in reference to the ORCHIDS AT KEW, a correspondent observes that in a recent visit he especially observed the following:—"Both in the warm and cool compartments there are several pretty *Dendrobiums* worth noting, and one of the finest forms of *D. crassinode* I have seen is in flower. The flowers are large, the sepals and petals being marked more than a third of their length with deep purple; the older pseudobulbs are an inch thick, short, and apparently quite distinct. This is, no doubt, a very scarce form. *D. capillipes* has short stout pseudobulbs, and produces its racemes of flowers from their extremity. The flowers are bright yellow, much in the way of *D. aggregatum* in size and colour. *D. thyrsiflorum* is a good old species, and deserves a place in all collections; the beautiful creamy white reflexed petals show off the bright golden labellum to great advantage. *D. crepidatum*, *D. Devonianum*, *D. Pierardii*, *D. pulchellum*, *D. dixanthum*, and *D. crystallinum* all do their share in making the house bright and gay. The *Vandas* are at their best now, and very beautiful they are. I counted about thirty spikes of flowers in different stages of development. *V. suavis* and *V. tricolor* are the most extensively grown; amongst them will be found many really valuable varieties. *Aerides odoratum* and *A. Fieldingii* are showing their spikes freely, and when in flower will fill the house with their delicious perfume. *Cattleya Skinneri* is always appreciated when in flower, the light purple flowers are so lovely. *C. Regnelli* is a charming species; the lip is deeply striped with purple, the wavy petals and sepals being blotched with dark brown. Two specimens of *Leptotes bicolor* are finely flowered. This is a curious little Orchid, the round fleshy leaves with incurved flowers, which are purple and white, render it a desirable species to any collection. It appears to grow well at Kew in shallow pans suspended from the roof in the cooler house. There is a good show of *Thunia alba*. The stems are short and stout, which are preferable, as in the opinion of many they flower much better than longer stems; the pendulous racemes of white flowers are always useful. Several *Odontoglossums* are in flower, and amongst the number must be noted one of the best forms of *O. Pescatorei*, which, if it had not the characteristic blotch of purple and yellow at the base of the labellum, would resemble a

form of *O. crispum*; the petals and sepals are finely crisped at the edges, and each flower is about 3 inches in diameter. *O. cristatum* had several spikes, as also the fragrant *O. pulchellum*. *Cypripediums* constitute a good display. Amongst the number in flower is *C. barbatum* var. *giganteum*, the dorsal sepal of great width and substance, *C. villosum*, *C. Rozzli*, *C. Hookeræ*, and *C. virens*. *Spathoglottis ixioidea* is a little gem with grass-like foliage and canary-yellow flowers produced on upright flower-stalks. The upright spikes of flowers of *Cœlogyne flaccida* show well above the foliage, and when a good specimen plant is seen in flower it is a lovely sight. *Sobralia macrantha* is flowering freely, in addition to many others of less importance."

FERTILISERS AND POTATOES.

YOUR correspondent "B.," on page 398 of the Journal, cites the authority of M. Ville, that if Potatoes do not receive a sufficient supply of potash the Potato disease will attack the crop with virulence. If, on the other hand, the potash is given in sufficient quantity the disease will not attack the Potatoes. Allow me to observe that I do not agree with M. Ville on this subject. It is certainly not true that the application of potash to Potatoes in field culture will prevent the disease attacking them. All manures, whether farmyard or artificial, have a tendency to increase the liability of the Potato to disease, and should therefore be used with judgment. Potash salts are perhaps less harmful than some others. If a moderate quantity of farmyard manure is used potash salts are not required at the same time unless the soil is deficient in potash. In some of the soils near Cirencester potash salts in such case did not add anything to the bulk of the crop. These soils contain about 1 per cent. of potash. In some respects I do not approve of the present plan of growing Potatoes by the application of enormous quantities of manure, farmyard and artificial. The quality of the Potato is injured, and I fear serious consequences must ensue unless, as a measure of precaution, the stock of seed tubers is grown specially for the purpose of planting on another part of the farm. They are more liable to disease, and a contaminated stock has a great tendency to reproduce itself.

With regard to the use of chloride or sulphate of potash, I had a conversation with a friend yesterday who is a chemist and understands these things, and he tells me that the sulphate of potash is preferable as a manure to the chloride, even if the price is considerably higher; and further, he says there is no faith to be reposed in the formula put forth by Mr. Jamieson in the "Proceedings of the Sussex Association for the Improvement of Agriculture," as mentioned by "INQUIRER," and that Mr. Jamieson must carry out his experiments on larger plots of ground before his results can be taken as settling the question.—AMATEUR, Cirencester.

THE ETHICS OF EXHIBITING.

A LONG and intimate acquaintance with exhibitions and exhibitors of flowers, &c., has certainly led me to the opinion that there are fewer offences against honesty and fair dealing in them than in other contests of which I have had some little experience—poultry shows for example; and the instances where I have seen the unfair practices prevail have been mainly in cottagers' classes. Whether it is that they do not consider it a breach of honesty, and that all is fair in war, I know not, but I have seen over and over again the most flagrant violations of fair dealing—so much so that I have very much questioned whether such classes did not do more harm than good. I have known, it is true, some cases amongst other classes, but they have been very few. I have known an exhibitor, whose stand wanted a good Rose, asking a fellow exhibitor to spare him one, but it led to the imminent risk of his being turned out of the building.

But there are one or two points which, while not involving unfair dealing, are yet in themselves so questionable that I may not be doing harm, perhaps, now that the exhibition season is commencing, to draw attention to them. Rose shows will be especially in my mind, but what I contend for will be applicable to other matters as well. The question as to what constitutes an amateur is one which has already come up before the Committee of the National Rose Society, and will probably be decided as far as their opinion and authority go before the year is out. There is nothing, of course, in the word "amateur" which forbids the selling of plants, but by long tacit consent it has come to mean one who grows anything simply for the pure love of it, and without any reference to any gain therefrom. If, then, anyone

goes in largely for growing in order that he may have plenty of blooms for exhibiting, with the determination of selling a number of his plants afterwards in order to recoup himself for his expenses, I do not think he can be fairly considered an amateur. Nor does it seemingly make much difference as to whether his sales be on a large or small scale. In writing thus I am perfectly aware that the matter has never been strictly defined, and that it is simply a matter of ethics, which any one person may consider he is justified in doing. When the matter is authoritatively decided the case will be different.

There is another point which is of a somewhat similar character, which no rules can ever reach, but which must be left to the good feeling of exhibitors, but it is one on which their "ethics" seem to me somewhat "mixed." Many societies have established various divisions for the purpose of encouraging all classes of growers. This largely prevails in classes for florists' flowers and in Roses, and there can be little doubt, if properly worked, of its beneficial effects in encouraging the growing love of flowers; but I have frequently seen that the value of the rule has been entirely vitiated. A grower who has always exhibited in one of the larger classes, and whose stock is of such dimensions that he is fairly considered as a proper person to exhibit in such classes, finds that as the day approaches he cannot exhibit as he would wish to do. Not that he cannot exhibit at all, but not in as good form, and that consequently he has but little chance of winning a prize in his usual class, and quietly drops down into a class which was never intended for him—of course swamps the smaller growers, and carries off the prizes. Now he has not violated the letter of rules, but he has certainly their spirit, and has thoroughly disconcerted the plans of the committee who framed the schedules. I have known these instances over and over again, and I would appeal to all exhibitors, especially those connected with our National Rose Society, to consider whether there is not some degree of truth in what I say. I never exhibit a Rose, consequently in all I have written I have no interested motive. I am, I am thankful to say, on friendly terms with all our exhibitors, and consequently I have no personal animus in the matter. All that I desire to see is a clear stage and no favour. But I feel that smaller growers require to be protected from those who, having "big battalions," can, as a rule, carry all before them. I feel with a small grower who once said to me when one of our largest amateurs had taken first prize in a class for six Tea-scented Roses, "I think, sir, we ought to make a class of three Teas for Mr. —."

I believe the prospects of Rose shows this year are favourable. From most parts I hear good accounts. I have just walked through Mr. Cranston's piece of twelve acres of maiden plants on the Manetti, and all I can say is he must be a very strong man who will carry off the leading honours from him. In some places I hear strong complaints of aphids and maggot. I have but little of either, and I should hope that now (May 22nd) all fear of spring frosts is over. In about a month's time "the ball" will be opened at Maidstone, and let us hope for a happy and successful time for all real lovers of the Rose.—D., Deal.

NEW AURICULAS.

It was the practice of my dear friend Mr. Woodhead and myself, if we saw anything fresh in the floral world when we were not in company together, we wrote each other a description of what we had seen. Our ideas so well agreed that the descriptions generally fairly represented the good and bad properties of the flowers made note of. My notes on the new flowers shown at the National Auricula Show at South Kensington were misplaced, and have now only been just recovered, so that I was only able to give a verbal description to my friend of those flowers which attracted me most. Now that my notes are to hand I will furnish particulars.

Laurel (Pohlman).—Green; tube yellow, paste dense, body colour fair, tube too small, and edge notched.

Excelsior (Horner).—Green; edge smooth and circular, paste dense and good, body colour too heavy, and tube pale.

Agamemnon (Horner).—Green; good edge, paste dense, tube rich yellow, body colour too heavy. Had fourteen pips.

Jumbo (Douglas).—Green; good edge, body colour dense but narrow, paste solid, and tube good.

Mrs. Moore (Douglas).—Grey; good edge, body colour fine, paste dense, and tube fine. A very good flower.

Bluebell (Horner).—Grey; edge good, body colour heavy purple, paste good, and tube fair.

George Rudd (Woodhead).—Grey; large with good edge, body colour dense, paste solid, tube orange yellow.

Mrs. Dodwell (Woodhead).—White; edge white, body colour black and solid, paste dense, tube yellow. A good flower.

Reliance (Mellor).—White; in the style of Smiling Beauty, tube a deeper yellow.

Dr. Kidd (Douglas).—White; edge and paste good, body colour irregular, tube pale.

Brunette (Pohlman).—Dark self; a bold flower with good edge and dense paste, tube yellow. A strong grower.

Ringdove (Horner).—Self; paste narrow, good petal, and good edge.

Blue Gown (Mellor).—Purple self; tube too wide, paste not circular, notched on edge.

Mrs. Fife (Fife).—Plum self; fine-shaped flower, with good tube and paste. Very promising.

Mrs. Douglas (Simonite).—Purple self; a strong grower, good edge, but paste too narrow.—GEORGE RUDD.

EARLY PURPLE ARGENTEUIL ASPARAGUS.

NOTWITHSTANDING the generally received opinion that there is only one variety of Asparagus, long observation has convinced me that not only is there a material dissimilarity in size, shape, and colour of Asparagus, but also in precocity of maturity as well as in the precocity of annual growth, and that in these features the Early Purple Argenteuil is an especially marked variety. I have grown Connover's Colossal and The Giant, but when these arrived at full maturity I could not distinguish much difference in them from the old and usual type. The Early Argenteuil is of large size and of good shape without the protuberant head and narrow neck sometimes seen in Asparagus; the points of the young shoots are also of a distinct pinkish purple colour. I have planted this variety singly, the plants from 4 to 5 feet apart each way; and also in beds, the rows 18 inches and 2 feet apart, and 18 inches from plant to plant; but I prefer plenty of room, which is one of the French secrets of success, and the single-plant mode I find not only the most productive but the most profitable. Some very fine heads have this year been cut from the beds made in 1879, but from the single plants put out the same year the Asparagus has been much superior, some of the young shoots reaching $3\frac{1}{4}$ inches in circumference and of corresponding length, the length, however, depending upon the depth of the covering or blanching material (decayed dung mixed with light soil and free from stones), which I have drawn up to the plants just previous to their showing above ground, and again in about ten days, from 3 to 4 inches being added on each occasion. All my plants were one year old from seed at the time of planting; and although the knife has been more sparingly used, some very fine heads have this year been cut from the plantations made in 1880.

There is a tendency in the Early Argenteuil variety to produce a second or autumn growth, and last season not only would it have been possible to have had Asparagus in September before the summer growth was cut away and the beds received their winter dressing, but again on the 21st of December I cut some good heads, attributable, doubtless, partly to the season, but I have noticed the second growth in a less degree in previous years. This season Asparagus showed at the Experimental Garden as early as the 15th of March, and on the 6th of April cutting commenced in earnest, and will be continued only to the end of May. As many as seven or eight large heads at a time have been taken from plants put out singly.

A winter dressing of decayed dung is annually applied, and last year early in spring a moderate application of salt and nitrate of soda was given, tried on different plants; but as the latter is considerably more expensive I shall in future use salt, there being apparently no corresponding advantage in the use of the nitrate. The soil, which is a sandy loam resting on a subsoil of sand or gravel, received at planting time no other treatment beyond being well and deeply manured as for any ordinary crop; but of course this treatment would not apply to ground of a heavy character or with a wet subsoil. After cutting ceases the plants are well secured to stout stakes, as the growth made is very strong and rapid, mostly from 6 to 8 feet in height, and unless prompt attention be given to the support of the plants they will be materially injured by the winds.

The ground between the plants on the single system may be utilised for early Cauliflowers or some other crop for the first two years. In France these hillocks of Asparagus are grown amongst Vines and Haricot Beans, but then greater space still is allowed between the plants. After the second year the shade from the Asparagus, when it makes its full summer growth, is too great for most crops, but I think seed Onions might be profitably grown the third season, as they would not interfere largely with the root-growth of the Asparagus, which eventually will take full possession of the intervening spaces to a great depth. The flavour and quality of the Early Argenteuil variety is all that can be desired,

but I have an impression that the flavour of Asparagus generally depends more upon its growth and after-treatment than upon the variety; flavour must, however, always be a matter of opinion, and so must the question of green or white Asparagus. Personally, however, I much prefer the well-blanching deeply-cut growth, of which, if made rapidly in warm weather, every particle will not only be eatable but much superior to the ordinary green Asparagus usually seen in local markets. The plants, too, are not drawn upon so much as when a considerable underground growth is allowed to be wasted, and from observation I feel sure that if the heads be allowed to get much above ground before being gathered the productive powers of the plant for the season will be materially lessened. The blanching growth of Asparagus requires considerably more cooking than the time usually accorded to this vegetable, and for want of this much of the white growth, otherwise highly flavoured, is wasted.—T. LAXTON, Bedford.

IXIOLIRIONS.

THE two "Ixia Lilies" known to horticulturists—namely, *Ixiolirion montanum* and *I. tataricum*, are both attractive border



Fig. 93.—*Ixiolirion montanum*.

plants, and form welcome additions to any collection of hardy favourites. They are suggestive of *Camassia esculenta* in the form and colour of the flowers, especially the first-named, which is represented in our woodcut (fig. 93), but they are not quite so strong-growing as that, though very free and floriferous. *I. montanum* has been found in Persia upon the hills about Teheran and in other similar districts of temperate Asia. But it is quite hardy in the neighbourhood of London permanently planted out in the borders. A moderately good soil appears to suit it better than one that is very rich, as in the latter case the growth is excessively luxuriant and the flowers proportionately few. In a well-drained position where the bulbs become thoroughly matured flowers are

annually produced very freely, and are not only attractive in the borders, but afford a useful supply for cutting, the bright purplish blue colour being most agreeable for associating with the numerous other tints, which are more common.

I. tataricum differs little from the preceding, and the cultural observations are equally applicable to both. This species has more expanded less tubular flowers than the other, and the colour also is rather lighter, though this varies to some extent in different plants according to the situation they occupy and their vigour. It is also more limited in its geographical distribution, being confined to the Altaic range of mountains. Both the species have been referred to the genus *Amaryllis* by some writers, *Ixiolirion* being one of the genera founded by Dean Herbert.

A WEEK IN BELGIUM.—GHENT.

[THE SIXTH DAY.]

HORTICULTURAL visitors to this quaint and ancient city appear to instinctively wend their way to the Place d'Armes, where at the Hôtel Royale they find all they need—but soap; and as the excellent English-speaking proprietor can scarcely act as *valet de chambre* to all the visitors, a little difficulty may be experienced by the one-language men who are not provided with a supply of that essential article of the toilet.

During the travelling season, towards the end of summer, it will be passing strange if a Britisher is not found at this horticultural rendezvous, and many a pleasant surprise and glad some hour have been spent there by friends who have found these "sudden meetings" mutually agreeable. My last visit had, however, nearly been lonesome; but in the small hours of the morning a familiar voice was heard through the wall of one who was preparing for an early departure. Abandoning the ceremony of full dress, a hasty meeting and very informal greeting was witnessed by a startled attendant. "What, Wright, you here! What in the world are you after?" "Well, not after *Begonias*, Laing, and I should have thought you had plenty at home." But such is the zeal of our nurserymen, that they are always searching for the "best," and a continent, even the world, is ransacked for the enrichment of their stores. No, an Englishman will not be long lonesome in the Hotel Royale at Ghent.

But what can be seen in one short day? There are M.M. Lindens, Van Houttes, Van Geerts, Pynaerts, D'Haenes, Dallières, De Smets, Verschaffelt, and still more. To visit all of them is physically impossible, and it is a matter of compulsion to select the nearest, and to pass reluctantly or to glance over quickly those establishments that are more or less familiar; but horticulturists visiting Belgium for the first time should undoubtedly see them all, a cordial reception being certain at every one of them. We first take the nearest from our standpoint, and spend

AN HOUR AT LINDEN'S.

Though this is the "Compagnie Continentale d'Horticulture," the "old name," as old names naturally do, still clings to the establishment, which is situated in the Rue de Chaume. It is not more than ten minutes' walk from the Place d'Armes, and directions for finding it can be had at the Hotel. The way is somewhat tortuous, and some of the narrowest of streets have to be traversed. The name of Linden, however, is familiar, and the nursery can be reached without any more difficulty than gives zest to the search.

It appears to be situated almost or quite in the city—a large open space of a few acres, occupied with choice Conifers and subtropical plants, Agaves, &c., the large and numerous plant-structures forming the boundary on three sides, the offices occupying the fourth. The houses, large as they are and many, are crowded with plants, many of great size and fine, notably Palms and Ferns, many of them rare and choice, and all evidently well cared for, as they are clean and in good condition.

Palms have been mentioned. They astonish by their numbers and bewilder by their variety. The first two houses are crowded with them, and there are perhaps a dozen more similarly occupied. Those valuable kinds, *Geonoma Schottiana*, *Kentias*, *Fosteriana* and *Belmoreana*, are in thousands in the two structures referred to. Adjoining is a house of *Dracenas*, all the best of the new ones and most useful of the older sorts being represented, the stately *D. Shepherdii* apparently having special attention. Ferns and Lycopods innumerable afford relief to the more massive specimens. Another colony of Palms, and we have to bend our way under the huge leaves of *Pritchardia pacifica*, grand specimens, with an undergrowth of seedlings of various kinds, *Kentias* perhaps predominating. Another large house of *Dracenas* shows how great must be the demand for those plants. From this we change to an assemblage of *Nepenthes*, amongst the various choice forms of which *N. bicalcarata* was producing several pitchers, and growing freely. A collection of Aroids next claims attention, including, as it does, plants of all sizes and in various colours, from the stately *Anthurium Thibautianum* and *A. insigne* to the brilliantly curious *A. Andreanum* and bright and white forms of *A. Schertzerianum*, *A. S. Rothschildianum* having white spathes spotted with cinnabar red; but one of the most interesting batches of plants, which will be watched with some anxiety, was composed of healthy and free-growing seedlings, the result of a cross

between *A. crystallinum* and *A. Andreanum*. The new *Aglaonema pictum* gracile attracts by its neat marbled leaves.

In striking contrast with the kinds alluded to is a houseful of Bromeliaceous plants, which appear to be more generally appreciated on the continent than in England. They are, however, unquestionably attractive by their distinct characters and richly marked and bright leaves, and many of them richly coloured bracts also; their persistent foliage also renders them well adapted for vase-decoration in rooms. It is impossible to even enumerate the forms, but one, *Billbergia variegata*, is considered one of the most useful; while a new form, *Æchmea paniculigera*, is very handsome by its free growth and excellent colour.

The Winter Garden, a very large and lofty structure, contains Palms and Tree Ferns of immense size. There is quite a forest of them. At the entrance a fine specimen of *Cyathea dealbata* commands attention, not so much by its size as by the depth of the blue tint on the under sides of the fronds. In this respect it is very striking, and rarely indeed is such a colour seen in Ferns. The large Palms we must pass, as it is of more interest to observe house after house full of such valued decorative kinds in a small state—thousands of them—as *Cocos Weddelliana*, *Ptychospermas*, *Latantias*, *Arecas*, *Geonomas*, *Seaforthias*, *Kentias*, *Oreodoxa regia*, and *Pritchardias*, the massive *P. grandis* being in great demand in Russia, and a large consignment was being packed for that country. A great number of small Palms appear to be planted out, while numbers are prepared in small pots plunged in beds of tan, and the neatness of the houses was remarkable. Of the newer Ferns well represented were the handsome *Aspidium Germyni*, stately; *Davallia fijiensis*, and *Adiantums* *Legrandi* and *celebensis*, all extremely graceful and elegant.

Crotons are extensively grown in all the leading varieties, *C. Bergmanni*, *A. Carrière*, tricolor, and magnificent being conspicuous by their rich colours; and in a large houseful of *Dieffenbachias* all the forms must have been represented. Ornamental-foliaged *Begonias* have attention; two very distinct and likely to become popular being *B. diadema* and *B. Teuscheri*, there being two varietal forms of the latter. All these are distinct, the first-named being especially noteworthy by its deeply lobed and clearly marbled leaves.

Amongst other plants of merit for various purposes of decoration were *Pothos aurea*, a free-growing creeping plant for stove rockeries, most of the leaves being flaked and blotched with yellow; *Alocasia Putzeysi*, one of the finest of the *A. Lowi* type, and richly veined; *Heliconia triumphans*, which at the first glance reminds one of *Maranta zebra*, but from which it is abundantly distinct and very handsome; *Dracæna Lindenii*, which, although first introduced by Mr. Bull, has been in great demand in this nursery. It is perfectly distinct from *D. fragrans variegata*, which appears to be known in Belgium as *D. Massangeana*, being much clearer in colour. It was plunged in the open air, and it is said to be spoiled if placed in a very high temperature. To notice all, or half, the plants in the establishment would be to compile a huge catalogue, and as we must stop somewhere it may well be at the new bedding plant *Gynura aurantiaca*. Although this is compared in merit with *Iresine Lindenii* and *Coleus Verschaffeltii*, it is perfectly distinct in character from those plants and must be employed in a different manner—that is to say, it is not likely to be adapted for edgings to *Pelargonium* beds to be kept in form by pinching. The *Gynura* was growing freely in the open air, the height of the plant being upwards of 18 inches, and the habit robust. The leaves are as large as those of *Cinerarias* and somewhat similar in form, but of a stouter or rather more velvety texture. They are covered with a multitude of fine hairs, and these, on the young leaves especially, are rich violet in colour, imparting a novel, indeed an unique, appearance to the plant. For the centre of a bed having a yellow margin, or employed with such silvery-leaved plants as *Statice argentea*, *Stachys lanata*, or *Centaurea ragusina*, the *Gynura* will no doubt be effective, and it is certainly distinct from all other plants in cultivation. It is said to be hardy, and its appearance would certainly indicate that it would not display its peculiar properties of a blue-foliaged plant grown in a close-heated house.

Thus ends a hurried visit to a world-famed nursery, and the time though short was spent the more pleasantly because of the affability of M. Lucien Linden and the courteous attention of one of the skilled foremen of the establishment. My next hour was passed with M. Auguste Van Geert—passed most agreeably, as all who know this gentleman will readily admit, and a little of what I saw in his large and varied establishment must be told another day.—J. WRIGHT.

AMATEURS' VINERIES.

So many questions have been asked about what an amateur can grow in a vinery, and so many complaints are made against flowers being grown in the said vineries, that I send you list of plants I have grown the last three years during the four seasons of the year, and not once during that period have I ever been troubled with either mildew on Vines, thrips, mealy bug, or any other greenhouse vermin of any kind, except green fly on Roses, Lilies, and those plants that are peculiarly subject to this pest.

I grow each year the following flowers. I require to have presentable Grapes for company for dessert, good bunches, and average-size berries—when showing business is not in the question—but good flowers as can be found ten months out of twelve.

We have a hundred Zonals in flower from October to May, succeeded by others for summer blooming; twelve pots of *Lilium auratum* and *L. lancifolium*; fifty pots of choice *Cinerarias* from Christmas; I do not require them before the 1st of January. We have a few indifferent *Calceolarias* this year, but shall not have them again, as they need a cooler house. Six pots of early *Fuchsias*, and six in after season, all the best varieties, from June to November. We have fifty named Tuberous *Begonias* of the first quality, well grown, both single and double varieties; two dozen of the best *Gloxinias*, besides the usual summer-flowering plants, such as *Mimulus*, &c., and one dozen of the finest *Pelargoniums* early in their proper season; these having with me been obliged to be reduced to one dozen in favour of Zonals, which I can have in this vinery in bloom eight months out of twelve without any of the trouble or tenderness of the old *Pelargonium* in winter. I lost all my small choice collection of *Pelargoniums* in the winter of 1880, but not one of my Zonals or their cuttings in the same season.

My vinery is 40 feet long, lean-to, splendidly situated in every respect. I have in it eight Vines of Black Hamburg, two of Madresfield Court, and one Black Muscat; all are now carrying a very heavy crop, the best in all respects I have had for three years, and the house has never been so full of flowers as during the past nine months. I keep no professional gardener, but a young man I have been teaching for four years, who does all the stoking and general attendance when I am from home, thinning of berries of Grapes, and carries out to the letter my orders for ventilation, watering, and fumigation at the right time. I believe it is these two latter operations that most amateurs neglect "if they know them," and that causes so much to be asked and written about vermin and flowers destroying Vines. No man should attempt the flower culture I do and think of showing Grapes, but I can have them, and invariably do, fit for table, well flowered, well coloured, with fairly large berries. The vinery is always kept at a temperature of 50° at night from November on through the winter, except when caught like others in exceptional winter of 1880, for which I had not sufficient heating power.—SAXORING.

SHEFFIELD FLORAL AND HORTICULTURAL SOCIETY.

ON the 30th and 31st ult. the above Society held an Exhibition of plants, flowers, and fruits in the Cutlers' Hall, Sheffield, and though the display was not extensive, yet most of the classes were fairly well filled, and the quality of exhibits very satisfactory. The Society is making steady progress, but is not at present in a very flourishing condition, the funds not admitting of liberal prizes to induce spirited competition or bring exhibitors from a distance. Only a few money prizes were offered, and in the other classes certificates of merit were given, the Society defraying the expenses incurred in bringing and returning the plants, &c., contributed. That with such little inducement so bright and pretty a Show could be secured is highly creditable to the Sheffield horticulturists, both amateur and professional, who evidently take a real interest in the Society's welfare, and at the same time are willing to forward it as far as they possibly can.

Plants constituted the chief feature of the display, and foremost amongst these were the large groups from Messrs. Fisher, Son, and Sibray, Handsworth Nurseries, which comprised numerous choice Orchids, the *Cattleyas* being very noticeable, with small but healthy and well-coloured specimens of *Crotons*, *Dracaenas*, and other fine-foliage plants, the beautiful greenhouse *Rhododendrons* for which this firm is so justly noted being well represented. Mr. B. Crossland and Mr. W. S. Seagrave, Sheffield, each contributed collections of plants, including many choice and well-grown specimens that added largely to the attraction of the Exhibition. Another large exhibitor was Mr. Hannah, gardener to T. Wilson, Esq., Oakholme, who had an extensive collection of well-grown plants, amongst which were several *Crotons* superbly coloured, and all alike were in most vigorous health, the arrangement being tasteful and neat. *Gloxinias* from Mr. J. Udale, gardener to H. E. Watson, Esq., Shirecliffe Hall; *Calceolarias* from Mr. J. Shelley, gardener to Mrs. Hobson, Burnt Stone, Sandygate; and hardy Ferns from Messrs. J. Eadon, 67, Roebuck Road, and H. Davy, 282, Pitts Moor Road, were also admirably shown, the Ferns being particularly healthy and fresh, representing many of the most attractive and choice varieties in cultivation. Mr. Shelley's *Calceolarias* were admirable—of moderate size, healthy, with good heads of fine richly coloured flowers, and had the collection been at the Manchester Show in the preceding week it would undoubtedly have taken first honours, for all the plants there were too tall and thin. Several of the groups were tasteful, though some had been too hurriedly arranged, and the material had not been utilised to the best advantage. Besides those already mentioned the following contributed plants, flowers, and miscellaneous exhibits:—Messrs. T. Walker, gardener to B. P. Broomhead, Esq.; W. Collier, gardener to Mrs. G. Eadon, Crookes; E. Holland, gardener to Duncan Gilmour, Esq., Sandygate; J. Woodfield, Birley Carr; S. Morgan, gardener to J. C. Shaw, Esq.,

Crosspool; E. Blaydes, Albert Road, Heeley; M. Taylor, Freedom Road, Walkley; and Councillor Linley, Albert Road, Heeley.

Cucumbers and Strawberries were well shown by several exhibitors, amongst the latter being some fine samples of *Vicomtesse Héricart de Thury* from Mr. J. Udale, which were of good size and shape, and finely coloured. Several well-fruited plants were also staged.

ECONOMISING WATER.

IN our district the want of water is practically unknown, though periods of scarcity occur, not perhaps to a sufficient extent to be hurtful to animal life, but sufficiently so to be injurious to plants. Recurring series of dry seasons are experienced, those of a dozen or fourteen years ago being doubtless in the remembrance of many readers, and it is not unlikely that a dry summer is coming. In such a season the question of watering is a serious one, and a few thoughts on the subject may be useful.

Water is of great importance to plants. One constituent may replace another, as soda for potash, or, as in the case of lime or potash, such constituents may be practically absent altogether from the soil, and yet plants exercise their functions to a certain extent, but the absence of water immediately causes a cessation of life or the maturation of crops. Artificial irrigation is the best mode of entirely obviating all injurious effects of drought, but the means of so applying water are practically absent from gardens. At first thought the application of what water can be had would appear to be the next best thing to giving a sufficiency; but that may easily be demonstrated as not advisable. The best course to avoid these evils is deep cultivation, though perhaps the present is not the best time to speak on this part of the subject. It is thought that if a piece of ground with a bad subsoil is trenched deeply a layer of unfertile soil must be turned up to the surface; but really the best way to improve such a subsoil is to break it up, add manure, and leave it at the bottom of the trench. As a means of obtaining the best possible results in dry weather the ground cannot be too deeply stirred. Anyone who may doubt the capacity that deeply stirred land has for retaining moisture may have such doubts dispelled by trenching a portion of ground in autumn and leaving a portion undug till spring, and at that time see on which seeds can be sown earliest.

It is in this matter of retaining moisture that the application of animal manure will always be of the greatest value in cultivation. I refer, of course, not to decayed manure, which has lost some of its most valuable constituents, but to half-fresh manure. I value artificial manures highly and use them largely, but in dry weather they are absolutely inert where the application of water is impossible. Animal manure, on the other hand, retains moisture.

It is, I consider, unadvisable to commence watering crops until they absolutely require it, and even then I give it as seldom as possible. Watering newly planted vegetables is hardly ever done; it is much preferred to draw the roots through a mixture of water and soil, draw a drill deep enough to remove the dry surface soil, and plant without delay. When the worst occurs, and water is scarce, flower pots are placed over the plants for a few days until they are established. The need of an abundant supply of water at one time to a crop, Peas in rows for instance, will be seen to be more of a necessity than many people think if we consider that the dry ground in immediate proximity to that occupied by the roots acts as a dry sponge, and diffuses the water over a wide underground area.

Surface cultivation, as an economiser of moisture, deserves especial consideration. We cannot hinder healthy vegetables from absorbing the available moisture in the soil, but we can secure a practically non-conducting material on the surface of the soil by a free use of the hoe. The great mistake is that much mischief is done before hoeing is commenced; but it is such an extremely important point should a drought occur that it is wise to leave matters of less importance and have it done. Remember that hoeing and raking are two very different operations and act differently. By hoeing you render your surface loose and open, roughness adding to its usefulness as a means of saving moisture. By raking, the ground is firmed which has just been loosened, breaking the lumps into smaller particles, and packing them more closely together—means which render the escape of moisture easier.

Mulching really, like artificial watering, resolves itself into a question of means. If you have material for mulching use it by all means. Half-decayed leaves are of value, and cuttings from lawns if clean, not otherwise. Dry soil strewn over ground which has been watered has a wonderful effect in arresting evaporation.

Everybody knows the absolute necessity of moisture to cause the germination of seeds. Peas should have the drills well watered and the seeds immediately sown. We take the same

mode of causing a rapid germination in Turnips, Spinach, and other seeds in dry weather. Small seeds sown in beds are watered the same way, and mats placed over them until the seedlings make an appearance. The question of watering plants grown in pots and other matters we leave till another opportunity. —A NOR'EASTER.

NEW THROTTLE VALVE.

At the late Show of the Royal Horticultural Society a first-class certificate was awarded to Messrs. Foster & Pearson for the valve represented in the annexed engraving. This is a distinct improvement on the patent valve introduced by the same firm two or three years ago, inasmuch as the working parts of the present valve can be taken out should the wing or disc be set fast in any position. Other valves that we have seen can only be removed in a particular position, either when open or closed. The valve is also as durable as convenient, the working parts being of brass, and at any time can be separated from the cover, taken out and cleaned. A in fig. 94 represents the cast iron of the valve,

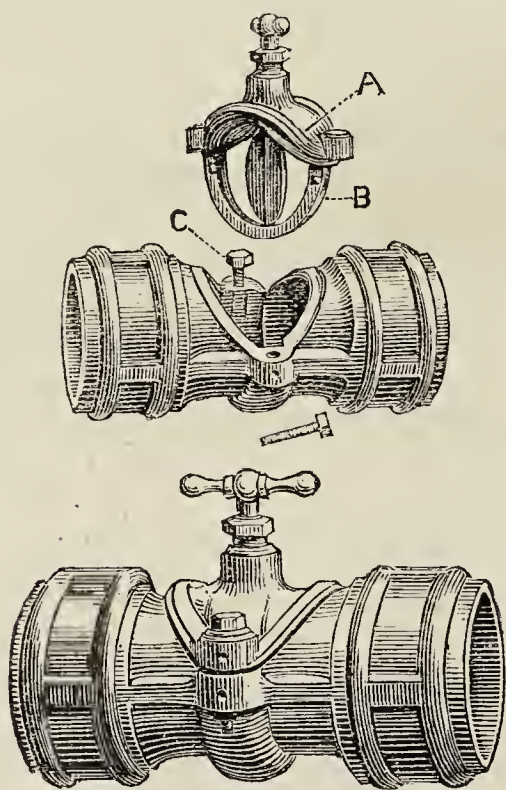


Fig. 94.

which closes the aperture when the working parts are removed; B the brass seat of the valve in which the wing works, and C the screws by which the cover is secured; thus the valve is as simple as it is effectual, and thus recommended itself to the Judges of the Show, who at once perceived its advantages.

THE PRODUCTION AND LOSS OF NITRATES IN THE SOIL.

AN esteemed correspondent has sent us the following lecture from the *Gloucestershire Standard*, which we have not been able to insert sooner. It was delivered some time ago at the Royal Agricultural College, Cirencester, by Mr. Robert Warrington, formerly a pupil of Dr. Voelcker and Professor Church, and now engaged with Sir J. B. Lawes and Dr. Gilbert in the prosecution of important work at Rothamsted. Mr. Warrington, it may be added, is the author of some valuable articles contributed to the "Dictionary of Chemistry," of the useful handbook "The Chemistry of the Farm," and is a member of the Council of the Chemical Society. We readily print this able lecture, pertaining as it does to a subject of importance to gardeners as well as to farmers:—

The lecturer first explained that nitrates were produced as part of the living functions of a very low order of living organisms (Bacteria) present in the soil. The action was analogous to that of the Vinegar Plant. This discovery of the exact mode in which nitrification was carried on in the soil was made by two French chemists, and the scientific world had only been fully acquainted with the process for about five years. The lecturer then described a few simple experiments by means of which the fact that nitrification is due to the action of living organisms in the soil could be demonstrated, and adduced an additional proof in the circumstance that anything which would destroy

the organisms would stop nitrification. The former supposition—viz., that nitrates were produced by mere surface oxidation, was thus proved to be erroneous.

The conditions necessary to nitrification were, first, that the soil should be freely in contact with oxygen, for nitrification was a process of oxidation. Next, the soil must be moist. The more wet the soil was the more would nitrification be assisted, provided the water was not so abundant as actually to choke the pores of the soil. Thirdly, the soil must contain some salifiable base for the nitric acid to combine with when it was formed, for if the base was not present the process of nitrification would soon cease. In the fourth place, a favourable temperature was necessary. The process of nitrification would take place, it was true, at a very low temperature, nearly at freezing point (he had had it going on at 3° Cent.), but in a summer temperature the process was wonderfully accelerated. The French chemists said that the most favourable temperature was about 37° Cent., when it would take place ten times more rapidly than it would at 14°. The process went on most rapidly in the surface soil, and that for two reasons—first, because there was on the surface a greater abundance of nitrogenous organic matter, the remains of animal and vegetable life; and, secondly, the surface soil came more freely into contact with the oxygen of the air than was the case with the subsoil.

The production of nitrates in the soil was a subject of very great agricultural importance, because scientific studies had clearly pointed out that of all forms of nitrogen nitrates were those most suitable for plant food, and in the case of cereal crops it had been established that nitrates were practically the only form of nitrogen which was adapted for the Wheat crop, and on which it fed with advantage. Thus the crop of Wheat or Barley to be obtained from the soil depended principally on the amount of nitrates which that soil contained. The subject became of new importance when they considered one of the properties of nitrates—viz., their great solubility and their great diffusibility; in fact, for them the soil had no retentive power. With some other substances this was not the case. Superphosphate, for instance, was readily retained; but for nitrate of soda the soil possessed no retaining power, and the permanence of it in the soil was at the mercy of the weather. It would, therefore, very easily slip through their fingers, and for that reason it was more worthy of their consideration.

He next referred to the results obtained at Rothamsted by means of their drain gauges. Some ten years ago Mr. Lawes desired to know the amount of drainage that passed through the Rothamsted soil. The amount of rainfall had been recorded for many years, and they wanted to know how much of the rain passed through the soil. Three blocks of soil were therefore isolated—that was to say, a trench dug round them, and the soil built in with bricks; the blocks were undermined, and cylinders were placed underneath in which the water draining through the soil was collected and measured. These drain gauges had been in operation for eleven years, and during the last five years the whole of the water coming through had been analysed, with the special object of ascertaining what was the quantity of nitric acid being formed in that soil in the course of the year. The blocks of soil were unmanured, and were kept free from vegetation, and were agriculturally in the condition of bare fallow. The table of results showed that the amount of nitric acid coming through was very considerable about the month of July, the average of five years for that month giving the amount at 2.78 lbs. per acre. In the month of August the amount increased to 6.68 lbs. per acre. During all the autumn months there was a great deal more nitric acid coming through than in the spring months. That exactly followed what he told them about the facilities afforded by summer temperature for the process of nitrification, for it was after the summer, when the autumn drainage began to flow, that they got the greatest amount of nitrates coming through. The average of the two sizes of drain gauges, 20 and 60 inches deep, showed that during the five years they had in one case 44.8 lbs. of nitrogen per acre per year draining through the soil, and in the other case 42.6 lbs. of nitrogen per acre per year. That was a very great amount of nitrogen to pass through the soil in the drainage water, and until those results were obtained they had no notion that such an amount would come away. An average Wheat crop of 30 bushels per acre only contained 45 lbs. of nitrogen, and here they had an average of 42 lbs. and 44 lbs. being lost by drainage, the highest amount in one year being 63 lbs., and the lowest 28 lbs.

He then proceeded to tell the amount of nitrates found in bare fallow. Samples of soil had been taken at Rothamsted, in two fields under bare fallow, of the first depth of 9 inches, the second depth of 9 inches, and the third depth of 9 inches. In one field the whole of the 27 inches yielded 58.8 lbs. of nitrogen per acre, and in the other the amount was 56.5 lbs. But at the third depth of 9 inches they had not got to the end of the nitric acid, and no doubt if they had gone still deeper a further quantity would have been found. The greatest quantity of nitric acid was found in the second 9 inches. They generally found that the salts in the soil lay in bands, and it was very seldom that they were equally distributed throughout; the cause of the greatest quantity of nitric acid being found in the second depth was very simple. The nitrates were produced on the surface of the soil, and a few weeks before these samples were taken there had been a heavy fall of rain which had washed them down. They saw that the results which he had mentioned really gave them the reason why bare fallowing should be an operation calculated to so

greatly increase the fertility of the land. In the early days of the Rothamsted experiments comparative trials were made, in adjoining fields, of Wheat after Wheat, and Wheat after fallow. The first ten years of those experiments showed that the land that had borne an alternate crop each year after fallow had produced as much Wheat in its five crops as the land that had grown Wheat continuously had produced in its ten crops. They would understand how that happened when they observed the amount of nitrates found to be present in bare fallow; when the Wheat followed a year's fallowing it found two years' nitrates to feed upon. Of course the advantage or disadvantage of bare fallowing depended almost entirely on the weather, for in wet weather the advantage was to a great extent lost owing to the nitrates being washed away and removed in the drainage water. It was, therefore, a dry winter climate which made bare fallowing of value.

(To be continued.)

MATERIAL FOR POTTING ORCHIDS.

I SEND you a sample of material for potting Orchids, which require something open to root in. It is plentiful in many localities where good fibrous peat is not to be had, and is simply the chopped-up roots of large specimens of *Lastrea dilatata*, and is mixed up for using with sphagnum moss and nodules of charcoal. I used the same material several years ago, but without cutting the fibres, and left off using it. Last year I was again induced to give the Fern roots a trial with the difference of chopping it up into small pieces, and have found it most satisfactory in all respects. I have just finished potting many Orchids with it, and have no doubt of their succeeding. Where *Lastrea Filix-mas* or *L. Filix-foemina* are common they will be found to yield suitable roots for this purpose as well as the species we use here. The variety of sphagnum used is also of much importance. Large-growing kinds when in robust health will overgrow the plants so much as to damage them considerably, unless the sphagnum is kept plucked, and by that means shortened. Wherever there is a choice of sorts, the dense-growing should be used. But when all has been said about composts, and important as these are, the kind of structure has far more effect on the plants than any other one thing. We know instances where certain kinds of Orchids grow luxuriantly with little care, and alongside them kinds which are also found to grow freely elsewhere can hardly be kept alive. The satisfactory plan here is for gardeners to grow alone the kinds which thrive, discarding all others.—B.

[The sample referred to has not reached us.]

THE HORTICULTURAL TENT AT CARDIFF.

ONE of the chief attractions of the Cardiff Show of the Bath and West of England Society, which has been held during the past week, was the horticultural tent under the stewardship of the Hon. and Rev. J. T. Boscawen. For many years Mr. Boscawen has placed his great horticultural experience at the service of the Society, and he has been, we are glad to know, well supported in his efforts to provide an instructive as well as a decorative feature in the Society's Show. We have frequently had an opportunity of bringing these exhibitions of Mr. Boscawen before our readers, and the peculiar system by which they are got together. From this peculiarity they differ much in their resemblance to one another; and while their profusion and quality are very much due to the neighbourhood in which they are held, they represent in a marked manner the style of horticulture which is practised in the district. Mr. Boscawen does not issue a prize list with tempting offers to draw the professional exhibitors from a distance, but he relies on the liberality of local horticulturists to send to the Exhibition the best examples of their skill, and according to the merit of their exhibits he rewards them. In this way a pretty clear estimate of the quality of the gardening which is practised in the district can be formed.

Judging from the state of the exhibition tent we are warranted in believing that gardening is well represented about Cardiff. It is true there are some large establishments in the neighbourhood, such as those of the Marquis of Bute at the Castle, Lord Windsor at St. Fagan's, Lord Tredegar at Tredegar Park, and others; but there are also smaller places where the art is carried on most meritoriously and with an enthusiasm which is worthy of imitation. In the course of our remarks on the arrangements of the tent we shall have to mention several of the owners of these gardens.

There is little scope for Mr. Boscawen to vary the place of his exhibition, as he is confined always to the same space and to the same form in which it is contained; however, he always makes the best of the material with which he has to deal. The attractive feature of the design is the central stage, which was occupied with large specimens of Tree Ferns, Palms, Crotons, Pelargoniums, Clematis, &c., which were supplied from the gardens of Lord Bute, Lord Tredegar, Lord Windsor, St. Fagan's; Sir Hussey Vivian, Singleton, Col. Turherville, Ewenny Priory; Mr. C. W. Luard, Llandaff House; Mr. Howell, Mr. E. Fowler, Colonel Page, Dulwich House; and Mr. C. E. Stallybrass. In Mr. Howell's plants we recognised good culture

and intelligent treatment on the part of his gardener Mr. Hammond, and these were exemplified in the way in which he brought out such plants as *Nepenthes Hookeri*, *Clerodendron Thompsonianum*, *Anthurium Wardii* (very fine), *Gleichenia Mendelli*, and *Maranta zebrina*. Col. Page's gardener, Mr. Armytage, exhibited a fine plant of *Bougainvillea glabra*, a handsome specimen of *Encephalartos caffra*, and creditably grown specimens of Pelargoniums. Mr. Woodward, gardener to Mr. Luard of Llandaff distinguished himself by a pair of very handsome and freely grown plants of *Adiantum farleyense*. Mr. Parker, gardener to Mr. E. Fowler, gained for himself a well-merited reputation for being a successful Orchid grower, judging from the very creditable appearance of a small but very choice collection of these plants which were exhibited. We also observed some good plants of *Gloxinias*, a good specimen of *Cissus discolor*, and a *Bougainvillea* exhibited by Col. Turherville's gardener, Mr. Hawkins.

A few nurserymen from a distance contributed some of their specialities, such as Messrs. Laing & Sons of Stanstead Park, who had a bank of their renowned Tuberous Begonias, some of which were quite new. Mr. Hooper of Bath was there with a fine display of his unsurpassed Pansies, and Mr. Kelway of Langport made quite a blaze of double and single Pyrethrums and a choice selection of cut flowers of some of the best herbaceous plants now in season.

At the end of the tent Mr. Boscawen again essayed his love for artificial rockwork, and in this he was ably supported by Messrs. Richard Smith & Co. of Worcester, who supplied all the plants necessary for its decoration. It is not easy at all times to find material by which Mr. Boscawen can carry out his great taste in rockwork construction, and this was one of those occasions. The material he had to deal with was ballast obtained from the docks, which being of a very homogeneous character, did not admit of much variety being introduced. This part of the arrangement was therefore not so varied nor so beautiful as was that which we were treated to at the Worcester Show, where from a greater abundance and variety of material Mr. Boscawen was able to formulate a design which was at once beautiful and picturesque. Besides a good assortment of alpine plants and Japanese Maples, with which Messrs. Smith & Co. furnished the rockwork, they had a fine group of well-grown specimens of select varieties of Clematis in pots.

Prominent features of horticultural interest in the grounds were the imposing stands of seeds, &c., of Messrs. Sutton & Sons, Reading; Webb, Wordsley, Stourbridge; Wheeler, Gloucester; and other exhibitors.

THE LATE MR. WOODHEAD.

ABOUT twelve months ago we briefly described the superb collection of Auriculas owned by Mr. Thos. Woodhead of Shibden Head, Queensbury, some three thousand in number. Recollecting that Mr. Woodhead's garden is more than 1000 feet above sea level, it was surprising to find such a display of floral beauty in that high-lying region. Thomas Woodhead, a plain homely specimen of a Yorkshireman, was manager for Messrs. Stocks of Shibden Brewery, and, being a bachelor, his house was kept by his sister. The house, a model of cleanliness and homeliness, faced the garden. It was not a large place, but it was a pattern of neatness and order. Everything that Thomas Woodhead attempted he did well, and his garden showed the refined taste of this unassuming man. High walls shielded his choice Roses from the stern blasts of that wild region, and in their short season they were gems in size and colour. These and a few Carnations, Picotees, and old-fashioned favourites, formed his outdoor show. The conservatories where the Auriculas grow are on one side of the open garden. It was here where Thomas Woodhead became famous in the floral world. He did not care much for showing at public exhibitions. He loved the flowers, but he did not keep them to himself; he was never happier than when exhibiting them to anyone who came. No passport was needed; you came to look at the Auriculas, and you were ungrudgingly shown everything he had, accompanied with explanations told in a pleasant quiet vein of chat. When you had completed your round you did not know which to admire most—the charming flowers that had riveted your attention or the instructive conversation you had enjoyed with their owner. His humble attire and quiet manner led to some amusing misconceptions of a man who was blessed with sufficient to indulge his *penchant* for flowers without caring to make money out of them.

A lady and gentleman had heard of these famous Auriculas. They drove over to Shibden, pulled up at the modest abode of Thomas Woodhead, asked to see the flowers, and were politely escorted by the owner. The lady "took stock" of this ordinary-looking man, and probably thinking that he would be proud to find a customer, indicated to him which Auriculas she would like to take home in the carriage. Thomas Woodhead was nettled by her patronising style; his Yorkshire blood was quickened by the cool assurance of this lady, and he, who would have given flowers to a poor woman, was determined she should not have an Auricula. He told her the prices he placed on the pots she had

chosen, and this astounded her. She had never imagined that Auriculas could be valued at two and three guineas a pot, and the orders she had given at these prices would have reached a respectable figure. She did not conclude the bargain, suddenly lost her interest in the Auriculas, and departed without having purchased a solitary flower. Thomas Woodhead smiled to himself. He used to tell that story gleefully.

In a corner of one of his conservatories was a small compartment where he always had a few choice flowers in bloom. It was the month of November, and his Chrysanthemums still sported their gay petals. A person was looking round and espied these bright gems at that dull season of the year. "Could I ask you for a few flowers for my sick wife, who lies bedfast at home?" said he, looking appealingly at Thomas Woodhead; "she is so fond of flowers, and they would so please her." Thomas made no reply, but a tear appeared in his kindly eye. Words he had none for the man who pleaded in touching accents for the sick woman at home. The twain continued their round, and when the visitor was about to depart Thomas Woodhead asked him to come into the house. Placing a cigar box in the visitor's hand he said, "Take that to your wife." They separated with mutual good wishes. When the visitor reached home he opened the cigar box in his wife's sick chamber, and found it filled with the choicest and sweetest flowers that Thomas Woodhead could cull from his conservatory. Thereafter, whenever that visitor called at Shibden he was doubly welcomed, and before he departed a cigar box was placed in his hand, and it always contained the best flowers of the conservatory. Thomas Woodhead needed no reminding a second time of "the sick woman at home," whom he had never seen, and whom he never forgot, for he sent a bunch of his very choicest Auriculas to place on her coffin when she was killed by that fearful easterly wind which also ended the days of Lord Beaconsfield. Another year has sped, and in the same month that "the sick woman" died, and at the time when his darling Auriculas were at their best, Thomas Woodhead was gathered to his fathers, and his remains rest in Coley churchyard. Peace to his memory. He was a good soul, one of Nature's noblemen.—(*Leeds Times.*)



KITCHEN GARDEN.

EARLY Peas should in dry weather be well supplied with water, mulching so as to enable them to withstand drought. Succession and later crops likewise should be well watered, especially in light soils; and be mulched with partially decayed manure, which will keep the ground cool and moist. Attend to staking in good time. A last sowing of late Peas should now be made, also of Broad Beans if such are required late. Any sowing of Peas made after this should be of the early varieties. Make another sowing of Dwarf or French Beans, and, if deemed advisable, of Runner Beans also. Celery plants should be placed out in trenches, single rows being preferable now, as the plants in that way are not so liable to become drawn. In the preparation of the trenches a plentiful supply of well-decomposed manure is essential, and should be dug in in a moist state, leaving a few inches of soil on the surface. As ground becomes vacant plant out Cauliflowers, Brussels Sprouts, Savoys, and early or winter Broccoli. The last sowing of Cauliflower seed should be made to afford plants for late autumn use; these transplanted on sheltered borders produce heads to a late period of the year if the weather is not severe.

At all seasonable times keep the surface soil, when it is exposed, well stirred about all growing crops. Early Horn and James' Intermediate Carrot may still be sown. Thin the earlier-sown root crops, such as Onions, Parsnips, Beet, Carrot, and Salsafy. These with kitchen garden crops generally have made very little progress during the last weeks, but with genial weather may be expected to advance rapidly. A first sowing of Round-leaved Batavian and Picpus or other curled Endive may now be made. Continue sowing seed once a fortnight of Lettuce, Radishes, and Spinach, also of Turnip, the last being preferably sown on a north border. Mustard and Cress will need to be sown at least once a week, so as to have a supply in proper condition always on hand. The stalks of early

Cabbage should be removed or cut, unless the ground can be spared to continue them growing, in which case the sprouts form a valuable supply for autumn. The general crops of Broccoli and other winter vegetables in seed beds should, if too thick, be thinned and pricked out on a spare border, so as to be strong in readiness for planting out as ground becomes vacant.

FRUIT HOUSES.

Pines.—Many of the strongest of the plants which were shifted into the fruiting pots about last September will now be showing signs of fruiting; or if such be not the case, means should be applied to effect it. Any plants, therefore, that exhibit no sign of fruiting, and are required to do so for early winter use, must be placed in a house where they can be subjected to comparative rest for five or six weeks. The heat at the roots should be lowered to 75°, allowing a free circulation of air about the plants whenever the weather is favourable, ventilating the house at 75°. Artificial heat will only be necessary to prevent the temperature falling below 60° at night. Water must not be withheld, but whenever it is needed afford it liberally. Smaller suckers of the same age, but not shifted into the fruiting pots until this spring, should be continued growing until the pots are well filled with roots, when, if it be necessary, they can be subjected to similar treatment as advised for the larger specimens, and these plants will then give a successional supply of fruit. Suckers potted last March will by this time be in their fruiting pots, or if not no further delay should be tolerated, as to retain them longer in small pots is detrimental to their after growth. Recently potted plants require to have a temperature of 85° to 90° at the roots, thoroughly watering them after repotting. All young stock will be growing rapidly, and should be allowed liberal space, as nothing is so inimical to sturdy growth as crowding them thickly together. Ventilate slightly at 75° or 80° early in the day, so as to withdraw condensed moisture from the foliage before that is affected by the sun. Continue affording every encouragement to plants with fruit swelling off. Where too many fruits are ripening at one time, and it is desired to retard any, they may be removed to a cooler house with a dry atmosphere after the colouring process has commenced.

Peaches and Nectarines.—Ventilate freely now in the daytime to aid the ripening fruit, and a little at night will help to prolong the succession. No artificial heat will be necessary except in very dull wet weather. Trees from which the fruit has been gathered should have plentiful supplies of water, and the foliage being kept clean by frequent syringing and the application of an insecticide if necessary, as it is important that the foliage be healthy as long as possible. The bearing shoots of the current year should be cut away so as to give those retained for next season's fruiting the full benefit of the ripening influences of sun and air. In succession houses tying in the shoots and syringing the trees twice a day in favourable weather must be attended to. As warmer weather is now commencing watering inside borders must have attention, as on no account must these be allowed to become dry. Outside borders should have similar attention. In the latest houses mildew sometimes appears and must be subdued by using flowers of sulphur. When white specks are seen on the young fruit some of the sulphur must be rubbed on them and the foliage dusted with it.

Figs.—Attend to former directions concerning houses in which the fruit is ripening, which should be continued until the present crop of fruit is fully perfected. When the fruit is gathered it will be necessary to gradually produce a more genial condition of the atmosphere in the house, whereby the satisfactory advancement of the second crop of Figs may be accelerated. Syringe the trees twice daily, and sprinkle the paths as advised before the colouring of the fruit commenced, and if not already done mulch the border and thoroughly water if needful. Attend to stopping, tying, and regulating the growths, not suffering the latter to be overcrowded. About this time thinning the second crop of Figs should be effected; unless the trees be very robust it should not be done sparingly, as too heavy a crop is not only exhausting to the tree, but the individual fruits are inferior in size and flavour. Later crops will now be rapidly approaching maturity. As soon as the colouring of the fruit commences apply the treatment which has been already

advised in the case of the early crop of Figs. If the trees in pots which were forced early be weakly, remove the second crop of fruit entirely. If necessary top-dress with fresh manure, and water with guano or liquid manure.

PLANT HOUSES.

Orchids.—Examine the collection, and any plants that have made vigorous growth and have filled their pots with roots should now be potted. Many plants grown in pots or pans attach the roots so firmly to the pot that it is impossible to turn them out without injury to the plants. The best plan in such cases is to take a pot two sizes larger and carefully place the one containing the plant into it, working in a few crocks and sphagnum. Where baskets are used and the plant has become too large it is better to carefully remove the roots from the wood with a thin knife and employ a new basket. Care must be taken not to overpot, as Orchids do not require large pots nor yet a great mass of soil to root into. East India plants that do not require shifting should be top-dressed with fresh sphagnum. If the repotting be carefully done the plants will not receive any check. Examine the blocks of wood, and if any are decayed employ new ones, as by doing it at this season the plants will have time to make new roots before the close of the growing season. It is necessary to have the foliage dry at least once a day, and the house must be properly ventilated, so that the leaves become dry about the middle of the day; but great care will be required to prevent a current of cold air coming in contact with the plants, this being more necessary now than later in the season, when their growth will be approaching maturity. The leaves now being full of sap any check to the growth is likely to produce disease. The ventilators should be so arranged that the air may be made to pass over the hot-water pipes. Examine the roots of the plants, and if any disease be noticed cut away any diseased parts and apply a little quicklime, and by keeping the plant a little drier than usual for a few days it will generally recover and grow out of it.

Where *Phalænopsis* are grown in pots or baskets very little moss should be employed; the roots delight to cling to the outside, and by syringing the surface of the moss and pots frequently the roots will be induced to grow more rapidly, and with less risk of decaying than when grown in a mass of wet moss. *Dendrochilum filiforme* requires a good supply of water now the spikes are showing. *Epidendrums* need a well-ventilated and light position. Plants of *Calanthe vestita* that have filled their pots with roots will be benefited by a shift into a larger size, employing leaf soil and well-decayed manure, or, if not desirable to shift them, give weak liquid manure at every alternate watering, syringing freely every morning and afternoon. They require very little shade, and must be kept free from scale. *Dendrobiums* should receive liberal treatment to enable them to make strong growth. *Odontoglossums* will require constant attention, ventilating early in the morning, so as to keep a cool temperature and a pure atmosphere. Copious supplies of water are needed by these plants at the roots, and frequent syringing. *Masdevallias* do very well placed in a cool north pit for the next two or three months, as when kept in too warm a house they become drawn and weakly and rarely produce any flowers; they require plenty of water at their roots, and the leaves need to be frequently sponged to keep down thrips.

Greenhouse.—Hardwooded plants should immediately after flowering have the seed vessels removed, as nothing taxes the energies of the plant so seriously as the formation of seed. In removing the seeds from *Acrophyllums* a small sharp pair of scissors should be employed, so as not to injure the points of the shoots. The plants after the removal of the seed vessels will be much benefited by syringing with tepid water, and if any are infested with scale they should be dressed with an insecticide. Partial immersion or syringing is of no use; every part must be thoroughly wetted, and it must be applied warm (90°) so as to free the plants of the glutinous matter which the insects deposit. Any plants so treated should be examined again in the course of three or four days, and if there be any insects that have survived the first application it should be repeated.

Azaleas are much subject to injury from insects, particularly thrips and red spider, which if allowed to become thoroughly established upon the plants, do them so much injury that more than one season's

careful treatment is required to restore them to good condition. Plants that require larger pots should be attended to as soon as they have recovered from the effects of the flowering and have their roots growing. Although Azaleas will thrive for years in smaller pots than most other hardwooded plants, young specimens should not be cramped at the roots, or they rarely form fine examples. In potting the new soil must be made quite as firm as the old, or the water will pass through it, leaving the soil round the roots dry. Fibrous peat with about a sixth of sand is a suitable material for potting. Shade for a few days after potting, and keep the house close and moist.

Camellias.—Late-flowered plants now making growth may, if the pots are well filled with roots, be given clear liquid manure until the buds are set. Those that flowered early, and were at once started into growth so as to have them in flower by October, have now set their buds, and must at once be removed to a cooler house, one with a north aspect being most suitable, or a well-ventilated structure shaded from powerful sun.

Pelargoniums not yet in flower must be carefully examined, and if aphides be present fumigate at once. Assist those flowering with liquid manure, also those stopped some time ago for later bloom, which, having the pots filled with roots, should have weak liquid manure liberally. Zonal Pelargoniums may be treated similarly, likewise Tuberous-rooted Begonias advanced for flowering.

Specimens of *Richardia* (*Calla*) *æthiopica* that have flowered and have a number of suckers should be divided, potting the latter in 4 or 5-inch pots, and encourage them to make growth a few weeks, and afterwards be planted out in very rich soil; or they may at once be placed outdoors, and if liberally treated with liquid manure they will make strong plants by autumn.

Chrysanthemums must now be transferred into their flowering pots, good turfy loam with a fifth of decayed manure and a sprinkling of bone meal being a suitable compost. Good drainage is essential, as the plants require liberal supplies of moisture.

THE BEE-KEEPER.

SWARMING.

TAKING the country through, I think it will be found that swarming is later this year than usual. The causes of this are two—first, that owing to the cessation of breeding in early autumn last year, many of the bees arrived at old age in the spring months and died, thus thinning the populations of hives much before breeding this season had well begun; and secondly, the season itself has not been a good one for honey, stimulating and encouraging bees in their work of multiplication. The dwindling of hives is caused by the loss of bees faster than young ones are bred to take their places, and this has been general this season, hence many will swarm late. After the death of all the old race dwindling ceases, and then every day's batch of brood adds to the numerical strength of hives. As the weather becomes warmer bees sit wider, cover greater hatches of brood, and are better able to attend to the work of nursing. In ordinary seasons healthy young bees make wonderful progress, and rise rapidly in April and May. In many cases the swarming point is reached before bee-masters are prepared for it. Honey-gathering as well as brood-rearing hasten bees on to swarming. Every pound of honey stored in a hive drives the bees downwards and tends to this. Hot weather and honey-gathering also greatly increase the inclination for swarming, and many hives send off colonies before they are quite prepared to do so before their hives are full, and cases of swarming have been known to take place on the day that eggs were set in royal cells. In colder weather and in seasons of scarcity of honey bees are not so apt to swarm. They seem to hesitate and linger, and will even cluster for weeks outside their hives. And this should not be wondered at. The weather is so discouraging to them at such times that they make no preparations for colonising and setting eggs in royal cells. It is not a superabundance of bees clustering outside a hive or a number of drones inside that will induce bees to swarm in the absence of suitable weather. Bees place eggs in royal cells before swarming, but if the weather becomes discouraging for some days the bees may abandon the idea of swarming and destroy the brood in royal

cells. After this the bees will not swarm first fine day, even if clusters of bees are hanging outside. A few days of honey weather encourage the bees, cause them to set queens again, and when this is done swarms will be sent off in a few days.

Though swarming is a natural instinct of bees they shrink from it in unsuitable weather. Even in the act of swarming a black cloud or a shower of rain discourages them so much that they fail to carry out their arrangements. It is a misfortune to both bees and bee-master if swarming takes place in unfavourable weather. Bees take food enough at this time to last three days only; if the weather remain longer unfavourable they suffer much and die if not fed artificially.

When bees are about to swarm we find the hive crowded and its combs are full of brood. The queen and about two-thirds of the population are about to emigrate. Ample preparations have been made internally for the important event. Eggs have been placed in royal cells; young queens are on the way, and will come to perfection eight or ten days after their mother has departed with the swarm. The thirty thousand bees that will go with the queen have their honey bags well filled. Outside the hive a place has been found for the swarm to alight on and rest awhile, and scouts from the hive may be seen going to and fro. Outside workers stay at home for a while. There is an apparent lull amongst the bees, and when the moment arrives there is a rush of bees.

In hot seasons swarms are not so large as they are in seasons of a different character. In hot weather bees do not sit so closely together, and honey in the comb contracts the space of the hives, whereas hives with little honey in them have both more bees and brood in them; and it should be known that bees in large hives seldom cluster outside before swarming, whereas in small hives they almost always do so. Why this is so cannot be explained with any degree of certainty; and why swarms settle and rest awhile on the branches of trees before they seek more comfortable places is a question more interesting to the naturalist than important to the bee-keeper.

First swarms of course take pregnant queens with them, and leave eggs or grubs in royal cells, which become princesses in a few days after. When they arrive at maturity piping may be heard, and second swarms may be expected in a few days. One princess goes with a second swarm and one remains in the old hive. Second swarms are considerably smaller than the first, and therefore less valuable. They have another disadvantage—viz., their queens are unfertilised, and one or two weeks pass before they begin to lay.

A correspondent wants to know how artificial swarms are taken. There are various modes. The one we practise is very simple. As soon as a hive is full enough for swarming we blow some fustian smoke amongst the bees, turn up the hive, and place it on its crown a few yards from the stand, place an empty hive over the other, roll a tablecloth round the junction of the two, drum on the bottom hive for four minutes only, unroll the cloth, take off the swarm and place it on the board, then remove the old hive to another board, and the work is done. If there is space in the garden the two should be separated some yards right and left of the old stand. This system has been practised by us for fifty years, and it answers most satisfactorily.—A. PETTIGREW, *Bowdon*.

BRITISH BEE-KEEPERS' ASSOCIATION.

BEE HIVES, HONEY, &c., AT THE BATH AND WEST OF ENGLAND AGRICULTURAL SHOW.

THE Cardiff local Committee, in disposing of the funds at their command, wisely determined to give the Committee of the British Bee-keepers' Association a grant to enable them to offer prizes for hives and other appliances, and to give displays of manipulations, accompanied by lectures in the bee tent. The entries for observatory and the better class of moveable frame hives were small, but the classes for hives at 15s. and 10s. 6d. were very good. Mr. A. Blake of Dal-linghoe, Wickham Market, Suffolk, secured the first prizes in all three classes for frame hives, the second prize for the better class of hives being awarded to Mr. A. Pettigrew of The Castle Gardens, Cardiff.

In the class of hives for general use the second prize was awarded to Mr. J. E. Willshire of Semington, near Trowbridge; and the third to Mr. G. Morris, Partridge Green, Sussex. The second prize in the class for cottagers' hives, at 10s. 6d., was awarded to Mr. W. Lonsdale, Lurgan, Ireland; and the third to Mr. T. W. Cowan, Horsham.

Mr. G. Wooldridge of Horsham, Sussex, was awarded first prizes for an excellent display of appliances and comb foundation. The prize for observatory hives was awarded to Mr. S. J. Baldwin, Bromley, Kent.

The displays and lectures in the bee tent excited considerable interest, and proved a great feature of attraction in the show ground.

Bee-keeping in Wales is in a most primitive state. With few exceptions the residents are entirely ignorant of modern and improved methods. Great superstition prevails, and in many cases visitors to the Exhibition left the bee tent with the impression of the expert possessing some supernatural powers over the bees. Great difficulty was experienced in obtaining bees for lecturing purposes, the owners considering it an omen of ill luck to sell them. One lady asserted that an equivalent to the value of the bees must be given in corn, and another could receive nothing save cheese made in Glamorgan-shire. These difficulties were, however, overcome by the kindly influence of Mr. A. Pettigrew of The Castle Gardens, Cardiff, himself an advanced bee-keeper, who was most assiduous in his labours to promote the success of the Exhibition. The Cardiff local Committee and the British Bee-keepers' Association are greatly indebted to Mr. Pettigrew for his kind assistance in promoting the success of this department of the Show. Mr. S. J. Baldwin acted as expert. The Rev. H. R. Peel, Mr. T. W. Cowan, and Mr. J. M. Hooker were in attendance during the Show to give advice and assistance to the many hundreds of visitors who sought information upon the subject.



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (M. B.).—Write to Mr. Cannell, The Nursery, Swanley, Kent, from whom, we think, you can obtain what you require.

Green Gooseberries (H. S. E.).—One of the best and most useful varieties in general cultivation is Whitesmith. It is a good grower and great bearer, while it affords green fruit early. It is largely grown in Kent for market purposes.

Boilers (F. Joyce).—There are several boilers of the kind you name, and so far as we know all of them answer well when properly fixed and the pipes from them are sufficient and correctly arranged. We never recommend any particular apparatus, as the selection of a boiler depends on circumstances of which we are necessarily ignorant.

Stopping Vine Laterals (J. P.).—You allude to the sub-laterals or axillary growths that are produced by the fruit-bearing shoots. The "usual" practice is to stop them immediately a small leaf has formed, and to continue doing so throughout the season. This is a safe method. We have often removed the growths entirely, but could perceive no advantage arise from the practice except when the principal laterals were too crowded, and the foliage could not obtain sufficient light without the removal of the smaller growths and leaves.

Cucumbers Damping (J. R.).—We presume only a portion of the incipient fruits decay, the remainder swelling freely. In that case we do not attribute the decay to the Cucumber disease, but either to defective ventilation or fertilisation or to overcropping the plants. When none of the young fruits are removed some of them, when very numerous, are almost sure to decay instead of swelling; still, not many will do so under skilful management. You do not indicate the treatment to which your plants are subjected, and we can therefore only give a suggestive reply.

Ammoniacal Liquor for Gardens (J. M. R.).—It is a good fertiliser, but as it varies in strength it must be used cautiously. As a rule it is safe for most crops when diluted with six parts of water, and applied between the rows, not on the plants. Some time ago a correspondent described how he destroyed the caterpillars on his Gooseberry bushes with gas liquor. We quote his remarks—"To every gallon of the liquor I put five gallons of water, and boiled it all together; then I syringed my Gooseberry trees all over with the liquor as hot as I could bear my hand in it. The following evening I syringed with warm water, and am very rejoiced to say the trees were not only uninjured but looked refreshed and the caterpillars destroyed. I gave my Roses the same washing, and find them looking well after it."

Applying Gas Lime (A. D.).—It may be applied to land a little prior to inserting the crop, at the rate of twenty bushels per acre, distributing it equally over the surface, and ploughing or digging-in before sowing or planting. Double the quantity may be applied in autumn if the ground is not required for cropping before spring. A ton of gas lime is a sufficient quantity to mix with ten tons of soil. Thoroughly mix the lime with the soil, turn it over once or twice, and apply as a top-dressing to grass land at the rate of ten or twelve loads per acre. Gas lime is a hydro-sulphuret of lime with a little ammonia.

Inarching Vines (Amateur).—Inarching is better than budding or grafting; it is the surest method and most easily performed. Join young wood to young wood when it is green, cut a slice of each shoot to half its diameter, and tie the two together firmly with a strip of matting. The two shoots should be fastened together both above and below the union. In three weeks undo the fastenings, and tie another strip of matting round a little more loosely. The two edges must fit together, at least on one side.

Peach Trees Dying (A Subordinate).—If the trees are not old and

debilitated—and of their age you say nothing—we fear we cannot state the cause of their unsatisfactory condition. Your letter would indicate, however, that the root-action is either defective or the trees do not obtain the support they need from the border. They grow for a time and then fail. Are you sure the soil is sufficiently moist, not on the surface but quite through the border? We advise you to examine it thoroughly, and if it is in the least dry to give very copious applications of liquid manure. If we have not indicated the source of the evil we advise you to invite an experienced gardener to see the trees, and consult with him as to the best method to pursue under the circumstances.

White-leaved Beech (*J. Clark*).—The leaves you have sent are nearly destitute of chlorophyll, are very thin in texture, and have an unhealthy appearance; their sickly hue, however, may be partly the result of withering in transit. If the tree grows freely, and is in a healthy not a debilitated state, it will undoubtedly be most effective in pleasure grounds, as a tree “appearing as if covered with snow” cannot fail to contrast strikingly with the green foliage by which it is surrounded. You do not state the age of the tree. If it is healthy in character, and as free in growth as the normal green form, your white Beech will be an acquisition; if not free and hardy it will possess little or no value.

Specimen Begonias (*A. B. C.*).—We presume you allude to plants of the tuberous varieties, but you do not say so. The points to aim at are stout short-jointed stems clothed with foliage of the darkest hue, which should partly hang over the pots. Each stem should be supported by a stake, and the flowers should be numerous, large, of great substance and clear in colour. It is not necessary to peg down the growths, and attempts to do so might arrest their growth. The plants form natural bushes, and can be produced in an agreeable form by the aid of a few stakes. They like rich soil and a rather moist atmosphere, such as may be produced by keeping the medium on which the pots stand constantly moist; and they succeed admirably with the pots plunged in ashes or cocoa-nut fibre refuse, in a house or frame having a night temperature of 60°, falling to 55° in the morning, abundance of air admitted during the day, and plenty of water afforded always.

American Blight (*J. P. Dublin*).—You ask if we have had complaints of the unusual prevalence of this insect during the present season. As yet we have not of the plague being greater than in former years, but we have observed it in far too great abundance on many trees. You attribute the prevalence of the pest to the last very mild winter; but while this may have had some effect in increasing the numbers of insects in your district we have seen them, we think, quite as abundant as they are now after a severe winter. The winter is the time for eradicating the pest, as stronger applications of paraffin or other insecticides can be given to the trees when they are destitute of foliage than at the present time. Try the effects of petroleum at the rate of 2 ozs. to a gallon of water, but mixed with warm soapsuds, and oblige us with the results of the application.

Stimulants for Roses (*M. E. H.*).—You say you cannot obtain liquid manure and ask for a substitute. You can readily make Liquid manure by mixing some good guano with water at the rate of half an ounce to a gallon, and you may use it immediately. A convenient method is to mix a thumb-potful of guano in a garden pot holding 3 or 4 gallons of water and pour at once copiously around the trees. Another plan is to sprinkle guano, bonemeal, Clay's fertiliser, or other prepared manure on the soil over the roots at the rate of 2 ozs. per square yard and water it in. Such an application would be too strong for many flowers, but is not too strong for Roses that need manurial aid. Soot is an excellent stimulant for Roses in the country; there is fully too much of it in towns.

Naming Plants (*Winchester*).—Every endeavour is made to name sprays of all plants that are sent to us, and, as our columns prove, 90 per cent. of such plants have been named, the specimens of which were sufficient for identification. Many sprays arrive in such a withered state, or destitute of flowers, that it is absolutely impossible for anyone to name them, and if the senders could see the state the crushed and withered fragments that reach us they would be surprised at their condition. You say the specimens you have sent “must have arrived in perfect condition.” We fail to perceive how you could arrive at such a positive conclusion, since you only saw them before they were sent off. Had they really arrived in “perfect condition” they would have been named, if their names were ascertainable, and if they were not the fact would have been stated. So far from the sprays to which you refer having last sent to us in a tin box arriving in perfect condition, they most certainly never reached our hands at all! The cause of the non-delivery of the parcel is, of course, beyond our knowledge. We are sorry you have been so unfortunate, but we scarcely think the fault is exclusively ours.

Destroying Slugs (*Amateur, Preston*).—There are various modes by which they may be reduced in numbers if not extirpated. You say you have picked five hundred in a few days; we have killed as many thousands in a week by placing small heaps of bran and brewers' grains at intervals along the borders, and a few hours afterwards, towards ten o'clock at night, visiting the heaps, which were found covered with the depredators, and these in turn were covered with salt. Traps of Cabbage leaves are useful, but only when examined at sunrise can any great number of snails be caught. Sprinkling the ground with newly slaked lime is serviceable; but it is time and material wasted when done in the daytime after the snails have returned to their haunts. To be effectual it must be applied very late at night or very early in the morning when they are engaged in a foraging expedition. Old dead lime is of no use whatever for destroying slugs. A sprinkling of salt over the entire garden in spring at the rate of an ounce to the square yard is beneficial, and stirring the ground frequently between the crops materially checks the movements and ravages of slugs. We have not tried paraffin as a slug-destroyer, but do not think half an ounce mixed—and it must be well mixed—in a gallon of water would injure many plants, while it would almost certainly be distasteful to their enemies. Try it cautiously on a few plants of little value at first, and you will soon satisfy yourself as to its safety or efficacy. If any of our readers have employed paraffin as a slug-destroyer, we shall be glad to hear how they applied it and with what results.

Strawberry Pioneer (*G. P., Hants*).—The following fairly expresses the characters of this Strawberry, which was raised by Mr. Laxton, certificated by the Royal Horticultural Society, and sent out by Messrs. J. Veitch & Sons of Chelsea in 1877. It is a real acquisition among early varieties, being as early as La Marguerite, has handsome conical fruit, highly coloured, firm in texture, richly flavoured, and with a slight acidity that is very refreshing. Much of the fruit has been decidedly above medium size, with an occasional very large wedge-shaped fruit. The crop is abundant, and the growth of the plants vigorous and robust. It is all the more welcome, supplying as it does a real want, for we have hitherto had no really good early Strawberry with large fruit that would travel well. As to whether it would be superior to Prince

Alice Maud for market purposes in your district we cannot say, for varieties which are excellent in one county are found unsatisfactory in others, so much depending upon the soil and situation. Your best course would be to obtain a few plants for trial on a moderate scale at first, which would enable you to judge if it is likely to be profitable in that district.

Cucumbers Diseased (*A. C.*).—We fear your plants are attacked with the disease about which the late Mr. Fish wrote as follows in 1871:—“After having had my share of the Cucumber disease, and confessing my perfect ignorance of the cause or cure, I regret to find that some of the best Cucumber growers in the country have been baffled with this disease for several years, and I, like myself, am as ignorant of the cause as ever. I could do nothing by way of remedy, except by sowing and planting often, for by the time a few fruit were produced the disease would appear, and then no treatment was of any use. I have had several applications for a remedy. Sorry I am to repeat what I have frequently stated—that I know of none, and but one alleviation, and that is frequent planting. I have many suggestions before me as to change of seed and soil, composts, temperature, air-giving, watering, &c. All I will say is, it is proper to try every means; but I tried all, and all were in vain. I had seed from all parts of the country; I had maiden loams and soils of all kinds, including heath soil pure and unmixed, and all conceivable mixtures of the same; and whether in a pit heated by hot water or in a dung-bed frame, in ridges under handlights or in the open garden without anything, just when the plants began to fruit the spot on the leaf, and sometimes a gummy exudation from the fruit, would appear, and then all was about over.” We regret that we are unable to recommend any other remedy than that which we adopted ourselves and the practice of another cultivator. We emptied the house of every particle of soil, burnt sulphur in it, washed every portion of the brickwork with hot limewash, painted the woodwork, and used soil for growing the plants less rich and in less quantity than before. Dressing the affected parts with charcoal dust we have found of benefit; and Mr. Cooling of Derby, who used to grow Cucumbers extensively for seed, informed us that he had quite checked this form of disease by dusting the plants and also the bed frequently and freely with Amies' manure. This fertiliser, being a dry powdery substance, would, we presume, have the same effect on Mr. Cooling's plants as crushed charcoal had on ours, and you might well try the remedy; it could not possibly do harm, and might do good. You might also try the plan of growing the plants in large pots, but the roots permitted to pass over and through them into very rough soil, as practised so successfully by Mr. Coleman at Eastnor Castle, as referred to on page 336 in our issue of November 1st, 1877. The Cucumber-root disease is illustrated on page 34 of this Journal, the issue of January 4th, 1875, which can be had in return for 3½d. in stamps, sent to the publisher, asking him to forward No. 720. The disease as attacking the leaves and fruit is referred to in Nos. 524, 526, 529, 530, 532, 534, and 536. These numbers, or any of them, can be had at the price above quoted, 3½d. each. Manetti stocks can be had from most nurseries where Roses are largely grown.

Names of Plants (*C. D.*).—*Limnanthes Douglasii*. (*W. B. M.*).—1, *Briza media*; 2, *Dactylis glomerata*; 4, *Alopecurus pratensis*; 6, *Anthoxanthum odoratum*; 7, *Holcus mollis*; 9, *Lolium perenne*; 3, 5, and 8 are insufficient. (*T. J. S.*).—*Diplacus glutinosus*. (*E. H. H. V.*).—The Candytuft is *Iberis corifolia*. The “*Nemophila*” is *Limnanthes Douglasii grandiflora*, a Californian annual. (*E. J. Day*).—We only found a mass of loose petals in the box with the leaf, and the Rose cannot consequently be identified. The leaf resembles that of the Banksian Rose. (*A. J. Brown*).—*Mesembryanthemum Haworthii*. (*X. L.*).—1, *Saxifraga muscoides atropurpurea*; 2, *Sedum carneum*; 3, *Gentiana acaulis*; 4, *Erinus alpinus*; 5, *Anthericum liliastrium*. (*W. R. T.*).—1, *Orchis maculata*; 2, *Cystopteris fragilis*; 3, *Bromus sterilis*; 4, *Holcus lanatus*; 5, *Veronica gentianoides*; 6, *Mussenda frondosa*. (*R., Kent*).—1, *Odontoglossum vexillarium*; 2, *Oncidium macranthum*; 3, *Restrepia antennifera*; 4, *Masdevallia Harryana*. (*Watford*).—*Claytonia perfoliata*. (*J. D.*).—1, *Cerasus lusitanica*; 2, *Campanula glomerata*; 3, *Polemonium ceruleum album*; 4, *Asperula odorata*.

“Rational Bee-keeping” (*Zenas*).—Mr. Abbott of Fairlawn, Southall, will be the publisher of a translation of Dr. Dzierzon's work on “Rational Bee-keeping;” when it will issue from the press we do not know, but should presume very soon. The work has been translated by Mr. S. Stutterd of Baubury.

Returning Cast—Colour of Comb—Killing Drones (*Mrs. W., Walton-on-Thames*).—A third swarm or second cast in no way differs in character from the one preceding it, and requires the same management precisely. When after-swarms are returned they not unfrequently reissue on the succeeding day. Indeed, sometimes they wear out the patience of the bee-keeper by coming forth after having been put back three or four times. Repeated casting usually destroys all hope of profit from the parent stock for the year, but the casts will, if well cared for, ultimately make capital colonies. Wax differs slightly in colour, according to the character of the honey the bees are gathering at the time of its secretion. Orchard tree honey often gives a wax of darkish hue, and this may account for the observed difference. Does it arise from brood being raised in the supers? If so, the brown pupæ cases would easily be detected if the comb be examined. The destruction of drones merely means that honey is not flowing freely, and that present circumstances would not warrant any intention of swarming; but this does not involve that the bees certainly will not swarm this season. Drones are frequently destroyed, and afterwards a new batch raised in the course of the same summer. Indeed, a second slaughter is occasionally followed by a third batch. The weather has lately been unfavourable, and care should be taken that the bees are not in need.

COVENT GARDEN MARKET.—JUNE 7TH.

OUR market has been largely supplied during the week, and with a slight reduction goods have been readily cleared. English Pines are now in demand. Grapes dull.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	0	0 to 0	0	Grapes	lb.	2	0 to 4	0
Apricots.....	box	2	0	2 6	Lemons	case	15	0	20 0
Ditto		1	0	2 0	Melons	each	4	0	5 0
Cherries.....	lb.	0	0	0 0	Nectarines..	dozen	12	0	15 0
Chestnuts.....	bushel	0	0	0 0	Oranges		100	4	0 6
Currants, Black..	½ sieve	0	0	0 0	Peaches	dozen	15	0	20 0
Red.....	½ sieve	0	0	0 0	Pears, kitchen..	dozen	0	0	0 0
Figs.....	dozen	8	0	10 0	dessert.....	dozen	0	0	0 0
Filberts	lb.	0	9	0 0	Pine Apples, English	ft.	3	0	4 0
Gosh.....	100 lb.	45	0	50 0	Strawberries	lb.	2	0	6 0
Gooseberries	½ sieve	3	6	4 0	Walnuts	bushel	7	0	8 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms	punnet	1 0 to 1 6
Asparagus	bundle	3	0	6 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney	100	1	3	1 6	Onions	bushel	3 6 0 0
Beet, Red	dozen	1	0	2 0	pickling	quart	0 0 0 5
Broccoli	bundle	0	9	1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0	6	1 0	Potatoes	bushel	2 6 3 6
Capsicums.....	100	1	6	2 0	Kidney	bushel	3 0 3 0
Carrots, new	bunch	1	0	1 3	Potatoes, new	per lb.	0 1 0 2
Cauliflowers, new	dozen	3	0	4 0	Radishes..... doz.	bunches	1 0 0 6
Celery	bundle	1	6	2 0	Rhubarb	bundle	0 4 0 6
Coleworts.....doz.	bunches	2	0	4 0	Salsafy	bundle	1 0 0 0
Cucumbers.....	each	0	4	0 6	Scorzoneria	bundle	1 6 0 0
Endive	dozen	1	0	2 0	Seakale	basket	0 0 0 0
Fennel	bunch	0	3	0 0	Shallots	lb.	0 3 0 0
Garlic	lb.	0	6	0 0	Spinach	bushel	3 0 0 6
Herbs	bunch	0	2	0 0	Tomatoes	lb.	1 0 0 0
Leeks.....	bunch	0	3	0 4	Turnips, new.....	bunch	0 6 0 0



POULTRY AND PIGEON CHRONICLE.

THE PRODUCTION OF WOOL AND ITS USES.

(Continued from page 459.)

WE have no desire to lead the home farmer away from his interest by the cultivation of wool in preference to pursuing his direct benefit in the greatest profits by the production of mutton, which is the staple produce required by nearly all classes of consumers. In fact, upon a large portion of the best soils in the northern and north midland districts the most mutton and the most wool are produced together in the same animal, because some of the heaviest carcasses of mutton are derived from the pure-bred long-woolled Lincoln sheep, and at the same time these sheep produce the heaviest fleece of any of the breeds kept in the kingdom. Since the price has so much fallen, and the price of the various sorts of wool of home growth are so nearly assimilated, the weight of the fleece is of the utmost consequence, and the following will show the variety and difference of the weight of the fleece of sheep peculiar to different counties and breeds of sheep. We find from reliable evidence that the fleece of Wiltshire Down sheep only average $3\frac{1}{2}$ lbs. per fleece; Sussex Down, Norfolk, Surrey, Durham, and Chester average 4 lbs.; Middlesex, Hertford, Essex, Cumberland, and Westmoreland average 5 lbs.; Bedford, Berks, Buckingham, Kent, Cambridge, Northampton, and Northumberland average 6 lbs. Ireland also averages 6 lbs. Scotland, however, only averages $4\frac{3}{4}$ lbs. Rutland, Gloucestershire, and Somerset average 7 lbs.; whilst Devon and Cornwall average $7\frac{1}{2}$ lbs. Leicester long wool averages $6\frac{3}{4}$ lbs. The lustre long wool of Lincoln averages 8 lbs. The same kind of wool, however, in the East Riding of York reaches the highest average we have to record— $8\frac{1}{2}$ lbs. of the longest lustre wool. We have introduced these valuable statistics to show the home farmer how utterly impossible it would be to attempt the reversal of the natural effects of soil and climate upon the various breeds of sheep in the production of wool.

With regard to the actual assimilation of the value of sorts of wool, this has been in consequence of a freak of fashion which has prevailed for some few years. In our textile manufactures previous to the year 1874 the long-haired wool known in the trade as "lustre wool" was extensively used in the manufacture of ladies' dresses, producing a material of beautiful texture. A few years ago, however, unfortunately for this country, the ladies of Paris were induced to discard the bright and lustrous fabrics produced by English looms and to substitute a dull material made principally of foreign wool and manufactured in France. English ladies followed their example, and in consequence there has been

a serious falling-off in the demand of materials made from lustre wool, and English-grown wool has become seriously depreciated in value. Farmers can now scarcely obtain half the price for their wool which they could and did obtain when lustre wool fabrics were in demand.

In proof of this statement it may be mentioned that one of the best known Lincolnshire farmers, who used to realise about £1400 for his yearly clip of wool, could not for some years past obtain for the same weight more than about £600. In the year 1880 the rate of decrease in the clip of wool has been more than twice as rapid as in the previous years, caused by liver rot and adverse seasons. The decrease of revenue to the farmers from wool alone during the last few years has been not less than £6,500,000 per annum. When home-grown wool was in good demand, before the present depression set in, the clip of wool sold at an average of 1s. 9d. per lb., whereas at the low rates which have recently prevailed only about 10d. per lb. could be realised.

As regards the practical question for the home farmer to consider, one point is whether at the low prices now ranging for wool does it always pay him to wash it? for the allowance made in all wools unwashed is one-third the weight of clean wool. This remark applies to lambs, which are often clipped in the month of August, and we do not wash them, the wool being sold in the grease, for which lengthy cross-bred wool before the fall in prices had frequently made from 7s. 6d. to 9s. per fleece. This, together with the better wintering of the sheep in the winter feeding (worth as much more per head) in many districts, made it advantageous to shear them without the trouble and risk of washing such young animals in the usual way.

Dr. Voelcker's statements on the chemistry or chemical constitution of wool are very interesting and likewise instructive, because it will enable the home farmer to account for various matters which, without full consideration, seem somewhat obscure and unreasonable. We therefore advise him to read the letter in the Journal of the Royal Agricultural Society for 1875, where, in Dr. Voelcker's letter to Earl Cathcart, he gives several analyses of wool taken for the purpose of showing the chemical contents of raw sheep's wool. The relative proportions of the constituents vary greatly in different species of wool. The most recent investigations made in Germany in 1875 by M. Märker and E. Schulz, pure wool (fibre) dried at 212° Fahr. consists of

Carbon	49.25
Hydrogen	7.57
Nitrogen	15.86
Sulphur	3.66
Oxygen	23.66
	<hr/> 100.00

It will be seen that wool not only is rich in nitrogen, but also contains a considerable portion of sulphur. E. Schulz further has shown that the portion of the yolk of wool, which is soluble in alcohol, consists principally of cholesterin, a peculiar well-defined fat. These contents, including also potash, the compounds of which with lime and animal matters impart to wool its characteristic odour. It also serves to show us, in the process of washing the sheep, that unless it is done in tubs and the proceeds used as liquid manure upon pasture land is lost, it is, however, particularly preserved when distributed and spread over farmyard manure. After these observations, and the fact of woollen rags being used as a manure for the growth of Hops, its value will be understood. At the same time it is worth observing that in washing the sheep the soapy portion of the yolk becomes partially dissolved, saturating the wool and giving it the silvery lustre so much desired. In referring to the variations in the price of wool, we find a table showing the price per tod of 28 lbs. from the year 1812 up to the year 1873, during which

period the price oscillated between 21s. as the lowest, which occurred in 1849, and 60s. 6d. as the highest in 1865.

The effect of soil and climate, as well as the materials for feeding and the accommodation for the animals, is somewhat important to the home farmer in deciding on the breed of sheep he would keep under the varying circumstances of his position as a flockmaster. In quoting the opinions of practical men who attempt to account for the subtle causes of the difference in wools, we must name first Mr. Frank Barnby of Dishworth, near Thirsk, who writes:—"I may mention that I showed my wool in a class of nearly twenty exhibitors at the Royal Agricultural Show at Leicester, the headquarters of the pure-bred Leicester, and had the first prize awarded to my wool. As to the superior quality of the Ripon district wool, I have heard the wool-dealers assign two reasons, each of which is very probable; one is that the substrata of red sandstone and freestone, which underlie the greater part of this district, act as a natural drainage, and the soil on these formations is invariably of a sound and, in most cases, a good-bodied kind. The other reason assigned is, that the climate is specially adapted for the growth of wool. I know that lambs bought in the north, and brought into the Ripon district, always produce wool much superior to that produced in their native climate."

The late Mr. Torr, whose opinion was much valued, said:—"On my own farm I can grow better wool on some portions than on others. In South Lincolnshire, about Spilsby, wool grows in an extraordinary manner; north of Fife, and south of the English Channel, the quality of the wool falls off, it then becomes hair or moss. The valuable fine lustre wool is pretty nearly confined to a few degrees of latitude." Valuable discoveries are made by attention to simple facts. The geological formation has a close relation to the nature of the soil, and materially affects the quality of the wool grown upon it. The celebrated Leicester sheep breeder, Robert Bakewell, who wrote upon the influence of soil and climate upon wool in 1808, "Classes wool; soils thus:—Clay the best, next sand, and then limestone, or of that nature. The fellmonger knows well the effect of lime water on skin wool, it acts unfavourably on the fibre and gives it hardness; chalky soils make wool rough. The particles of the soil, besides having a chemical and mechanical action on the fleece, colour the wool, which is often indelibly fixed upon it." Shelter and house-feeding is said to improve the wool; unsheltered fleeces are not so valuable as those better cared for.

WORK ON THE HOME FARM.

Horse Labour.—This will now be divided chiefly between using the mowing machine, hay and tending machine, with carting and the preparation for and drilling of Swede and early Turnip seed; for the fine rains during the last week in May must or should make the home farmer in the southern and eastern, together with the home counties, anxious to get the root seeds into the land as soon as possible whilst the land is still moist, and from the 7th to the 14th of this month may be considered the best time for both Swedes and early Turnips. In the northern and north-midland districts, however, the best season is past, and in these districts those farmers who had deposited the seeds for their root crops at the usual season have doubtless received the full benefit of the rains in the last week of May. To our mind, notwithstanding objections lately raised by some theorists to the application only of the bone superphosphate with the seed for root crops, the practical men agree with us that a full dressing at seed time of from 4 to 5 cwt. of bone superphosphate is sufficient upon the generality of soils in good cultivation, and otherwise in good cultivation from previous dressings for former crops; still, upon some sharp or poor land it will be best for the home farmer to apply some ammoniacal manures, such as guano and nitrate of soda, by hand, with some fishery or common salt in addition, to the crop just previous to the horse-hoeing, after the first setting-out or hand-hoeing. This will stimulate the growth of more foliage, and the bone manure will complete the process or growth of bulbing. The weather has lately been very favourable, not only for the growing crops but also for the horse labour and steam culture in the various operations included in the preparation of arable land for root-seeding. The home farmer must take every opportunity of examining the experiments relating to self-made hay by the use of the exhausting-of-heat process now being seen at all the chief agricultural shows; for he may rely upon it that this is one of the great and valuable inventions of our time, for when we contemplate the uncertainty of the climate of the British Isles it is evident that any new system which will enable us to successfully meet the various change of weather both in the saving of hay and corn, it becomes almost equal to a change of climate. At the meeting of the Royal Agricultural Society at Reading, Berks, in July next, prizes will be given for the best system and set of apparatus for the saving of hay and corn by the above-named process, and the work in connection will be exhibited in full operation on the show ground or near it. Messrs. Sutton, seedsmen of Reading, we understand, offer one hundred guineas for the best set of tackle. This prize will, no doubt,

stimulate inventors to further improvement, if possible, in the direction of more easily and effectually avoiding damage of both hay and corn at the time of stacking and securing consequent upon adverse weather, which is so peculiar to our climate, and from which the farmers have so severely suffered during the past five or six years.

Hilling the Potatoes after being horse-hoed and hand-hoed should now proceed; and in case the Potatoes have been set out 3 feet apart between the lines, which we have previously advised should be the plan adopted with all the late sorts which produce abundant foliage, it will probably be better to give two turns with the plough instead of one, in order that the plants may be properly hilled and greeted. Horse-hoeing the Mangolds should be promptly carried out, and continued as often as required by the appearance of the weeds or condition of the land. The hand-hoeing, we think, should not be done whilst the plants are very small or weak, for up to a certain size they always grow faster by standing thick in the lines. Besides, the enemies, such as wireworm and grub, if they attack the plants whilst they are young and weak immediately after being hoed, there is sure to be a very serious deficiency in the plants. When they are strong before being hoed the enemy cannot injure them much, because they quickly grow out of the way.

Hand Labour.—Hedge-trimming, especially the quicksets, should now be done, and then the second trimming may take place just after harvest. Haymaking and preparing ashes and manures for drilling with the root seeds will now be going on, and employ both men and women in all the early districts. The weeding in late-sown Barley should now be completed both by hand-hoeing and horse-hoeing if the drilling has been done at the distance of 10 or 12 inches between the lines. Again, there is no doubt in our mind from our experience, that the best way to secure a malting sample of Barley is to drill less seed than usual at the widest distance.

Live Stock of all kinds are doing well where careful and good management prevails. The quantity of green fodder, like Trifolium and Vetches, is most abundant, and the meadows and parklands are everywhere full of grass where carefully managed. The dairies are now in full work both in cheese and butter-making, and the late rains have been very favourable for the milk-selling dairies; in fact, milk in various districts is cheaper in consequence, and some parties are resorting to the suckling of calves for veal, in the advantage of which we entirely concur on any farms distant from towns or railway stations. The horned ewes which have been mated with down rams it is now known that large numbers of them will come to lamb early. It is also now a good time to obtain some of the best and early-lambing Dorset downs, especially the off-going ewes, from those farms where the flocks usually lamb early, in their native districts. Our plan is to take the ewes from such farms at a fair price in their wool immediately their lambs are weaned, about this time, and have the ewes driven to their new home as soon as possible; and by putting them into good keeping, with pasture grass and green crops and half a pound of cotton cake each per day, and a well-bred down ram mated with them, we have always found this the best way to obtain early-lambing down stock to produce lambs early enough for the Easter markets.

POULTRY AND PIGEONS

CLASSIFICATION AT POULTRY AND PIGEON SHOWS.

THE classification of both poultry and Pigeons at exhibitions has changed very much, even within the recollection of younger fanciers. Classes have of late been much divided, and many sub-varieties are recognised which before were ignored. We are not, however, at present concerned with this part of the subject, but with the number of birds shown together in a pen. The reasons for the change which has taken place in this respect are not far to seek. When poultry and Pigeon shows were originally started there was much public call for them. People wished to see pure-bred birds and to know something about them. Crowds came to shows, and the sums taken at the doors were large and remunerative. Promoters of shows then only had to look to making them generally attractive, and the expense of their management was almost always covered by the gate money. We will speak of poultry first. Three, four, or even five birds were often shown in a pen—a cock surrounded by his harem. It is a very pretty sight to see such a family well matched; the cock of proper proportion to his wives, and all of them so much alike that one can scarcely be distinguished from another. There were found, however, to be some practical objections to these full pens. The birds often had their plumage damaged, and the hens, if not well accustomed to the society of each other, not unfrequently fought. By degrees the number exhibited together was generally reduced to either three in a pen (a cock and two hens) or to pairs of hens and single cocks. This system long continued. Indeed, it is not more than two or three years since

some of the old-established societies gave up their pairs of hens and came down to single birds.

By degrees a financial difficulty arose in connection with exhibitions. They were so generally extended that all novelty in connection with them had worn off. The public no longer came in crowds, but often only a well-known coterie of fanciers were to be seen at a large show. The gate money no longer paid expenses. Indeed, here and there they were never paid at all. Managers thereupon had to fall back upon the entry fees paid by exhibitors. These were raised often to an absurdly high figure, so much so that nothing but a first prize could possibly pay an exhibitor. But name and fame were desired both for their own sake and for the enhanced value that they bring to a pedigree stock. Exhibitors showed that they would at almost any cost continue to exhibit, and so promoters of shows were encouraged to get all they could out of them. Their next expedient was to require all birds, cocks and hens alike, to be shown singly. This brought more entries, and at the same time entry fees were not lowered. A single bird, too, of course, eats less than two or three. The scheme was a cleverly devised one for the support of failing societies or for the starting of new and speculative exhibitions. There are not wanting many good arguments in its favour. Single birds cannot get damaged from scuffles or fights. The task of a judge is much simplified, for often ill-matched pairs were exhibited, and it was difficult to balance the undeniable excellence of one bird with an inferior companion against a more equal pair both of mediocrity. The smaller exhibitors, too, get encouragement from the single-bird system, for often they can pick out one fine specimen though their stock is not large enough to afford a well-matched pair. In spite, however, of these reasons in favour of the modern system we must confess to having a great fancy for occasionally seeing a pretty collection of birds. We have often remarked on the great beauty of troops of birds of one kind—a beauty not to be seen in single specimens. At the great Parisian exhibitions we have been much charmed with the collections of hens. A sight of the splendid trios at the International Show in 1878 was well worth a long journey. We do not in England at all wish to see anything like a universal return to the old system, but here and there we should exceedingly like to see prizes given for collections—say a cock and three hens together, or even three or four hens without a cock, the latter being shown singly as at present. Apart from the æsthetic reason of the beauty of such pens there is something practical to be said in their favour. The fact that three or four hens can be shown exactly alike is strong proof that the family is a pure and well-established breed. In many yards one or two handsome birds can be culled from a miscellaneous and motley crew, and a purchaser of such is probably grievously disappointed in their produce, but when the hens all match well their offspring are pretty sure to follow them. We should think some of the short summer shows particularly suited to an experiment of classes for collections. Two Turkey exhibition pens put together on the grass under a tent would comfortably accommodate pens of three or four birds, and all the inconvenience of having that number crowded together in close exhibition halls would be obviated.

We now come to Pigeons. This is altogether a different and much simpler question. Formerly Pigeons were almost invariably shown in pairs; now they appear singly. The reason of the change has been mainly the same as that of the alteration in poultry pens. Pairs looked much happier together. But it would be useless now to advocate a return to the old system. However, collections of Pigeons, so easily shown and seen together without risk, have always been kept up by the columbarian societies, and to some extent at the Crystal Palace Show. The exhibition of the Peristeric Society has always to our fancy been a most charming one. The full cages of some of the smaller varieties (Owls, Jacobins, Turbits, and Tumblers) are almost indescribable. We shall never forget our first sight of the Society's show at the Freemasons' Tavern before it advanced to the Crystal Palace. Mr. M. Wicking was there pre-eminent among breeders of Toys, and his cages of several varieties, specially Swallows, crammed as closely as they could comfortably hold, were a sight to delight alike both fanciers and non-fanciers. Then for a few years at the Crystal Palace were seen beautiful collections of four pairs. There are still classes for the same number, but the cages are now obliged to contain at least two varieties. Why this new condition was made we do not know, but it has effectually diminished their attraction. We have a vivid recollection of twice seeing in the first-prize pen eight of Mr. Serjeantson's best white Fantails surrounded by a large and admiring crowd. As we have said, we are far from wishing to interfere with the single-bird classification at Pigeon shows, but we should like often to see the addition of collections shown in large and appropriate cages. We are certain that they would be an immense attraction to the public who are not fanciers, but admire anything pretty, and we believe that for only nominal prizes many of the leading fanciers would be pleased to

contend in friendly rivalry for the honour of showing the finest collection of some one breed.—C.

We understand that "Spratt's Patent," in addition to feeding the dogs at the Kennel Club Alexandra Palace Show in June next, have also been entrusted with the benching of the exhibits. This firm will also supply the benches, pens, and food for the forthcoming Royal Cornwall Dog and Poultry Show.

GAPES IN CHICKENS.—I covered in this spring a manure pit to prevent the rain washing away its properties, and since that my fowls have been healthy, only one case of gapes. I attribute this to there been no drainage water for them to drink. Last year I lost a number of young chickens from gapes.—M. E. H.

THE POULTRY CLUB.

A MEETING of the Committee of the Poultry Club was held at the Charing Cross Hotel on Monday the 5th inst. at 2 P.M. There were present Messrs. H. Radclyffe Dugmore (in the chair), T. W. Anns, G. B. C. Breeze, A. Darby, A. Comyns, L. C. C. R. Norris, and G. Vigers.

ELECTION OF MEMBERS.—The following new members were elected:—F. Nettlefold, Streatham Grove, Norwood, S.E.; W. J. Eminson, Great Gonerby, Grantham. The following new associate was elected:—Mrs. H. Turner, The Woodlands, Offerton, near Stockport.

NEXT MEETING.—As one of the matters under the consideration of the Committee may require early attention, the Secretary was authorised, if necessary, to convene a special meeting of the Committee for Friday the 16th inst. Subject thereto the next meeting was fixed for Wednesday, July 12th, at the Charing Cross Hotel, at 2 P.M.—ALEX. COMYNS, Hon. Sec. Poultry Club, 47, Chancery Lane, June 6th, 1882.

OUR LETTER BOX.

Various (A. S.).—1, The deaths of your poultry are certainly mysterious; we should advise you at once to have a post-mortem examination made of one of the dead bodies by a competent person. The disease resembles degeneration of the heart and liver from over-feeding or improper feeding. 2, If by "hens pecking each other" you mean eating each other's feathers, it is almost impossible to make a lasting cure of the troublesome vice. It is best at once to kill the offender, for every bird in the run will soon imitate her bad example. We once cured a valuable hen by completely isolating her in a large grass paddock for some weeks. 3, Handling poultry can only be properly learnt by experience. The hands should be put over the shoulders of a bird. 4, For egg-producing qualities we should say 1, oats; 2, barley; 3, Indian corn. The last-named grain is far too fattening for breeding birds. 5, If you give hens as much of these grains as they would eat they would soon cease to produce eggs.

Cattle Troughs (Idem).—Stout galvanised iron troughs are the best for watering cattle of all kinds, whether on the home farm or on the roadside; they are made of different sizes and substance to suit all requirements.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrom- eter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1882.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
May.										
June.										
Sun. 28	30.185	64.2	53.1	S.E.	55.8	72.3	50.2	115.4	43.5	—
Mon. 29	30.326	62.6	55.5	N.	56.4	74.2	49.5	126.2	43.2	—
Tues. 30	30.315	64.7	53.4	N.	57.9	74.0	52.1	122.1	46.1	—
Wed. 31	30.305	58.8	53.0	N.	58.2	71.6	45.8	129.7	39.3	—
Thurs. 1	30.328	56.9	49.9	N.E.	57.8	63.1	42.9	124.9	39.8	—
Friday 2	30.161	60.0	53.1	N.E.	57.5	64.3	47.9	95.6	42.8	.068
Satur. 3	29.835	63.7	59.2	N.	57.0	72.6	53.9	109.4	43.2	.018
	30.208	61.6	54.3		57.2	70.7	48.9	117.6	43.3	.086

REMARKS.

28th.—Fine, bright, and warm; cloudy at times; bright moonlight night.

29th.—Very fine, warm, and bright, though somewhat overcast in afternoon.

30th.—Fine, bright, and breezy.

31st.—Fine, bright, and cooler; threatening clouds at times; moonlight night.

1st.—Cool dull morning; afternoon fine and bright, gusty wind; gorgeous sunset.

2nd.—Bright early; day gloomy, dull and cool; rain 6 to 7 P.M.

3rd.—Dull and close, with rain at intervals.

Temperature rather higher and much above the average. Barometer high and generally dry; damper on 3rd.—G. J. SYMONS.



15th	TH	Oxford Horticultural Show.
16th	F	
17th	S	
18th	SUN	2ND SUNDAY AFTER TRINITY.
19th	M	
20th	TU	
21st	W	Leeds and Burton-on-Trent Horticultural Shows.

CLEMATISES.

PROGRESS of a remarkable character has distinguished the culture of Clematises in the past quarter of a century; and even during the last decade, perhaps, scarcely any other genus of popular plants has received so much attention with such astonishing results as that under consideration. The grand varieties now in cultivation have not been obtained without prolonged judicious crossing and careful selection of distinct forms, yet the species seem to hybridise so freely that scarcely any cross has been made without yielding some useful or handsome addition to the list of those previously secured.

There have been many workers in this interesting field, several continental firms having contributed largely to the improvement of the hybrid Clematises, especially MM. Lemoine, Simon-Louis, Briolay-Goiffon, Ruiz, Carre, and Dauvesse; but England can justly lay claim to the most brilliant results, and Messrs. Anderson-Henry of Edinburgh, G. Jackman & Son of Woking, and C. Noble of Sunningdale have rendered most valuable services to horticulture by their successful efforts to add to the beauty of these plants. Indeed, so great has been the advance within recent years, that it has been frequently asked if much more remains to be done in perfecting them. We have the flowering season prolonged from early spring to late autumn; flowers of wonderful size, excellent shape, and diversified shades in blue and purple; single and double forms, some fragrant, and all extremely floriferous. Perhaps the chief scope for further improvement is in the colours, particularly in deepening or enriching the tints of red that some of the species and varieties possess, but at present not sufficiently bright or effective. In this direction it is probable that notable progress will be made in coming years.

The uses of Clematises in a garden are numerous, for they must be considered as the most handsome hardy climbing plants we possess. For training over arches, bowers, on walls, as single specimens either with umbrella-shaped heads, in pyramidal or globular form, they are unrivalled, particularly those grand Jackmanni forms that have obtained such a well-deserved popularity. Where, too, that artistic irregularity, a so-called rootery, is provided in a garden, there is no plant so admirably adapted for trailing and serambling over it in a graceful wildness as the rich purple Clematises, and wherever they are so planted, provided the surroundings accord with them, a most telling effect can be produced. In some of the London parks examples of their usefulness and beauty in this respect can be seen during the summer months, but in Battersca Park they

have been employed to most excellent advantage in some of the more picturesque portions.

Specimens of moderate size in pots are very much admired for conservatories and general decorative purposes early in the year, and there are several varieties which can be readily forced. Permanently planted out in greenhouses or conservatories they are very attractive, the only defect for this work being the fact that they are deciduous and have a somewhat bare appearance during winter. This may be partially rectified by employing them with evergreen climbers, especially if the latter are such as flower at a different period. For exhibition, when in really good condition, like they have been shown this year by Messrs. G. Jackman & Son, they are magnificent, and in effectiveness cannot be rivalled. At the Regent's Park and South Kensington they were greatly admired, but at Manchester, owing to the fine position assigned to them, they were grand in the extreme. Referring to these a correspondent writes as follows:—

"Few who have not seen the Clematises exhibited by Messrs. G. Jackman & Son at London and Manchester this year can form an adequate idea of the beauty and effect of such plants. At the northern town twenty specimens formed the collection, arranged tastefully on a sloping bank, and there was not a faulty specimen amongst them. The plants were trained on wire trellises about 4 feet in diameter, and were covered with blooms each 7 to 8 inches in diameter. These Clematises were a feature alone, and if there had been nothing else of interest at Manchester they were worth a long journey to see. This was the first opportunity I have had of seeing Messrs. Jackman's Clematises exhibited, and was really charmed with them. These plants fully made up for the absence of the giant Roses that used to be such a feature of interest, and on one or two occasions caused quite a sensation. I have long grown the early-flowering Clematises for forcing into bloom early in the season, and had I to keep a conservatory gay during the summer months I should start at once to grow a number of plants. No doubt many will be stimulated to commence their cultivation in pots after seeing the fine examples exhibited. I know no plants that could look more attractive in conservatories. It is surprising they have not been more generally cultivated in pots."

In so large a genus as the Clematis, which comprises, according to some authorities, over two hundred species, there is, as might be expected, considerable diversity of character, but it is confined within much more restricted limits than in some other genera of even less extent. The majority are distinguished by their climbing habit, in this respect differing from their numerous relatives in the Ranunculus family. One peculiarity, too, that deserves the notice of young gardeners is the fact that the coloured portion of the flower is not the corolla, as it is often supposed to be from cursory examination; it is really the calyx, the apparent petals being the sepals, and the former when present are usually small and gradually merge into the stamens. This last character is seen particularly in the section Atragene, which differs in little else from the Clematises, though it is by some considered a distinct genus. The leaves are generally more or less divided, though in a few instances they are entire, and some exceptions to the prevailing deciduous character are also known, especially amongst those grown in greenhouses.

Clematises are widely distributed over the globe. In the eastern and western continents, the north and south hemispheres, some representatives are found, though they are chiefly confined to the cool or warm temperate regions. In botanic gardens and a few establishments where large collections of plants are grown numerous species are included, but those to which we are indebted for the handsome varieties and hybrids

now in cultivation are comparatively few. Passing the well-known British *C. vitalba*, the feathery fruits of which are so attractive in country hedgerows, and taking the species in the order of their introduction to this country, the first requiring notice is *C. viticella*, a native of Italian and Spanish woods, and other portions of South Europe. This is the oldest of the introduced forms, having been, so states the "*Hortus Kewensis*," brought to England by a Mr. Hugh Morgan in 1569, and it was mentioned by Gerarde and some other old writers. It is a moderately strong climber, attaining the height of 10 feet or more, with divided leaves and large drooping purplish-blue flowers, that vary to a pinkish tint in some forms. At the commencement of the present century, according to Martyn's edition of Miller's "*Gardeners' Dictionary*," four varieties were known—namely, "single blue, single red, single purple, and double purple;" but since then the forms have been largely increased, and for some time they were amongst the best grown. The chief interest attached to this species, however, is owing to its having probably been one of the parents of the hybrid *C. Hendersoni*, raised at the Pine Apple nursery about 1835, which was long regarded as the most successful attempt to improve the Clematis. Now *C. viticella* is considered the type of a number of floriferous summer and autumn-flowering varieties.

The next in chronological order is *C. Flammula*, a great favourite in many gardens, especially for such semi-wild positions as those already mentioned, where there is a rootery. It is a European plant, and was cultivated by Gerarde in 1597, so that it probably followed *C. viticella* very closely. It is of free growth, and produces its small white flowers in large clusters most abundantly, having a fine effect in suitable positions, a further attraction being the pleasing fragrance the blooms possess. A few varieties with coloured flowers have been obtained from this, but its chief use is furnishing stocks for grafting the other sorts upon.

A third old species, and one which has proved extremely useful to the hybridists, is *C. florida*, the first of those Japanese Clematises that have contributed so largely to the improvement of the various races. Dr. John Fothergill is credited with having introduced this in 1776, and since that time it has been freely employed for crossing with others, and it is now considered the type of a group distinguished by their large flowers, produced in summer on the old wood. The original form is of rather slender habit, the flowers being whitish or creamy in colour, but diversely tinted, and handsome variations have been obtained far surpassing that.

The present century has seen the greatest strides of progress, the advent of the beautiful Japanese and Chinese species *C. patens*, *C. lanuginosa*, *C. Fortunei*, and *C. Standishi* having afforded abundant scope for extended crossing, resulting in the superb forms that have made the fame of the English firms. The Woking and Sunningdale efforts in this direction have already been noted; but it must also be added that Messrs. Cripps & Son of Tunbridge Wells have assisted in no mean degree, and now Messrs. R. Smith & Co. of Worcester have also gained considerable credit for their extensive culture of these plants, an enormous stock being annually disposed of. Perhaps the most remarkable and useful results of all were those obtained at Woking about a quarter of a century ago by crossing the large-flowered *C. lanuginosa* with *C. Hendersoni* and some varieties of *C. viticella*, which yielded that grand hardy form *C. Jackmanni*, now so widely grown and so much appreciated as a free-growing profuse-flowering variety. Several of this type were raised about the same time, but they all partake of the sterling characters marking the form certificated at Kensington in 1863.

The early-flowering *C. patens* has chiefly given rise to the race adapted for pot culture to flower in spring, and to which succeed the magnificent forms of *C. lanuginosa*, continuing the supply of flowers through the summer months, the Jackmanni section prolonging the display until autumn, so that for the greater portion of the year it is easy to have some representatives of the genus contributing to the adornment of the garden or conservatory.

The varieties are now so numerous that it is not easy to make a selection, for nearly all have some special attraction of

their own; but the following list includes thoroughly useful, well-proved, and distinct forms.

Single Varieties.—Fair Rosamond, blush, with reddish bars; Lord Derby, pale lavender; Lord Londesborough, deep mauve, with purplish bars; Maiden's Blush, white, tinted with rose; Sir Garnet Wolseley, bluish, barred with red; Vesta, white; Gloire de St. Julienne, French white; Robert Hanbury, lilac blue, flushed with red; Lady Caroline Nevill, whitish, with lavender bars; Mrs. James Bateman, pale lavender; Jackmanni, deep purplish violet; and Star of India, bright plum, barred with red. These are named somewhat in the order in which they flower.

Double Varieties.—Lucie Lemoine, white; John Gould Veitch, bluish lavender; Countess of Lovelace, lilac blue; and Duchess of Edinburgh, pure white. Some of the newer varieties will be noted on a future occasion.—LORRIMORE.

VINES AT LONGLEAT.

(Continued from page 441.)

SUSTAINING FERTILITY.

It will be remembered that the materials of which my border is composed are very simple; and now, as it is twelve years since its formation, it may be said that it is nothing more than a medium to contain the roots where they can be supplied with their necessary food. Certainly there is not much vegetable matter left in it which was there at first. And as we know the products of vegetable decomposition furnish the greater bulk of plant food, we must see that there is something to take its place. Mineral matter is of longer duration, but in all fruit-growing there is a great demand on its stores, and a continuous supply of it, too, is an imperative necessity. Most Grape-growers of note in the present day have no trouble about this, as they can add to their borders every two or three years an unlimited supply of fresh turf; and everything necessary for a Vine's existence and productiveness for at least two or three years is to be found in almost any sample of turf. But still, such a plan has its disadvantages. Borders which have a considerable bulk added to them every two or three years must speedily grow to a large and inconvenient size, and where room is limited or good appearances respected we must from time to time make a fresh start, either by chopping off some of the roots or by having young Vines and new borders.

I like to know where the roots of my Vines are, so that whatever is applied may reach them. In the borders made according to the present fashion the feeders are going year by year further from home, and there are few or none in the original ground. Now this is inconvenient, to say the least, and if it can be proved that a few square yards give sufficient space for the roots of a large Vine during half a century I think there is something gained. I do not say that I can prove this much, but it is now pretty well known that my Vines are enormously large, and I can add that they have improved considerably since most of the original decomposable matter was exhausted; and as the improvement still continues there is no reason to suppose that, with our increased experience, a high standard may not be kept up on the same plan as long as the building lasts.

The roots are as much under control as if they were in pots; they reach a good depth down in the border, but are most numerous near the surface, and as much so close up to the stem as anywhere. I have given the present average extent of the roots when describing the watering.

A trench is cut through the border near the extremities of the roots of each Vine about every second year; a little fresh-slaked lime is mixed with the old soil, which is then returned and trampled well down. There is no inducement for the roots to come here in preference to any other part of the border, for where the roots already are is the richest, and in that lies the secret of keeping them at home. I have no doubt some of my readers will now wonder how it is possible to supply sufficient material to the surface for the purpose of keeping up the supply without rising to an inconvenient height. Well, it is not a large bulk of material that is wanted when once we find the right sort. It does no manner of good in the way of feeding to put manure 3 or 4 inches thick on to the top of a Vine border; the Vines cannot possibly consume that amount, and if they could it would only have an injurious effect on them.

The manure I use is applied at the rate of about half a bushel to the square yard, and that is ample for the purpose, but unfortunately I cannot obtain half as much as I want of the right sort. It consists of soil passed through dry earth closets, and also some from a dry earth urinal, with which is mixed a little wood ashes, and occasionally a few half-inch bones. This manure is spread on the border in March, and as the border is dry then on the surface, the manure itself soon dries, so that when the crust is broken to the depth of 1 or 1½ inch about the first week in April for the first watering, it mixes with the surface soil, and by the time the watering is finished the manure has all disappeared. In addition to this, at the watering given about the time of flowering a little stimulant is given in the form of Standen's manure, about half a pound being spread over 10 square yards. If we except a sprinkling of lime which will now be given about every other autumn and watered in, this is all my Vines receive in the shape of manure, and according to present appearances is all they want.—WM. TAYLOR.

(To be continued.)

LATE BROCCOLI AND EARLY CAULIFLOWERS.

I CANNOT see that "L. D. W.'s" method (see page 398) of growing Cauliflowers is a very profitable one, unless it be to obtain a few to come in between Broccoli and the Cauliflowers. But it is very rare that our Broccoli are over before the Cauliflowers come in.

I sow Cauliflower seed at the usual time—twice in August, and when they have two leaves beside the seed leaves they are pricked out 4 inches apart in an open piece of ground, and when large enough (generally about the middle of October) they are planted out, some into handlights and frame; and the rest, generally about half the number, are planted, one row about 15 inches from the bottom of a south wall, and a second row 2 feet from the wall. About the end of November as much earth as is possible is drawn up by the hand round each stem; this protects them from frosts and winds, and keeps the stems drier, they are then left without any further protection.

During the three late severe winters we had so many things to cover that we could not afford more than an old piece of matting for each handlight and frame, and nearly all the plants were killed, the few that were left in the handlights were those in the centre. What may perhaps appear the most strange was, that during the three winters I did not lose more than 5 per cent. of those planted out under the wall, and I do not think it was the frost that killed any of them, but slugs. Those that were near the wall were stronger plants in spring than the few that were left under glass. In February the plants nearest the wall are thinned out to from 15 to 18 inches apart. These thinnings and the second row are planted out generally between the rows of Peas. Those that are left come into use first. There are some fit to cut now (19th May), and we have still some Broccoli left of

Cattell's Eclipse, Knight's Protecting, and a small variety I have without a name. I may add that the above sorts and Suttons' Late Queen stood the severe winters better than any other varieties I had, but they were all laid toward the north at the beginning of November—an old practice too often neglected now.

The varieties of Cauliflowers that I grow are Suttons' King of the Cauliflowers, and First Crop, Early London, and Walcheren. I hope to give those varieties a trial that "L. D. W." so highly recommends.—J. L.

THE COMING CAMPAIGN.

THE rosy and leafy month of June has arrived, and with it come also all the sounds and signals of coming strife. Happily, unlike the "wars of the Roses" in times past, we look for no pride of chivalry to be laid low, or homes to be desolated—no streams of blood to flow. The strife is friendly; the spoils of victory may be taken without the ghost of the slain haunting the victor, and they who but a while ago contested in fierce strife may be seen, like counsel for plaintiff and defendant, quietly hobnobbing together after the fight is over. But it is astonishing how, as the time draws nigh, the excitement begins to spread. Old hands may take it more quietly, but there are ever and anon new combatants who want to know all about the terms and character of the contest. As Secretary of the National Rose Society all sorts of questions are addressed to me. One wants to know where boxes are to be had; another what sort of tubes are the best; another, who has been busily organising a new society, wants to know if a judge could be recommended to them, what sort of tickets are to be used, &c. As far as I am personally concerned, I ought to be divisible into two or three if I were to fulfil all the engagements I am asked to fulfil as judge. Old friends must have the preference, but there are some new ventures to which I shall look with interest, and if health is spared to tell of my experience.

Everything promises a glorious Rose season. One subject which had distressed growers was the long-continued dry weather. We have had in all parts of the country most splendid rains, washing away aphides and making the plants look absolute perfection. Another matter of anxiety was the supposed carliness of the season. Dreadful things were said as to the Roses being all over before the show season came on, but these copious rains have cooled both the atmosphere and the ground; and although here and there blooms are coming out, yet, as far as I have been able to see in my own and other gardens, Roses have been at a standstill for some time. Of course everything depends on the weather of the next fortnight, but unless we have a burst of tropical heat, such as we sometimes experience in June, I hardly think that we need fear a too early season.

The chief contests this year will have an unusual degree of interest attached to them—at least, those in the chief amateurs' classes. Hitherto it was almost a foregone conclusion that the two champions, Mr. R. N. G. Baker and Mr. Jowitt, would share the chief honours between them, that it became only a question which of the two would occupy the first place. Both of these renowned combatants have left the field, at least for the present, and it is utterly impossible to say who will take their place. There are several who are named for it, but it is something like the prophecies on races—very wide of the mark. I believe it is all but impossible to say who will carry off the challenge trophy this year.

As I have already indicated the fixtures of the shows, I may be permitted to say that since then I have heard of others. Brighton Show will be held on July 22nd, and Sittingbourne Amateur Show will be held on the 23rd.

Amongst minor details of interest will be the character of the stands on which the Roses will be exhibited. Hitherto moss has been an absolute necessity, but in the schedules of the National Rose Society other suitable material is permitted. I have seen Roses exhibited on velvet, and remarkably well they look; I have also seen them on wood painted and varnished like coachmakers do their panels, and we shall probably see these and other methods adopted. Doubtless where good moss is to be had it is preferable to anything else, but this is not obtainable everywhere.

I have just received a letter from one of our largest growers, who says—"From all I hear I should think the National Rose Society will at last have a genuine exhibition, in which all classes should be represented, and in first-class form. If the weather be suitable for a few days before the Show I fancy the Judges will have a hard task to find the winners, as I quite expect Jack will be nearly as good as his master in many cases."

May his anticipations and our hopes be realised.—D., Deal.

JERSEY LILY TURNIP.—Previous to this year I knew this Turnip to be one of the best ever sent out, but it is only now that I have

found out its full value as an early sort. Sown on March 18th it has produced bulbs larger in size, more handsome in shape, and delicate in flavour than several others sown at the same time, including the American and Stone varieties, which have generally been considered standard early sorts.—J. MUIR.

FERTILISERS.

As the discussion has become rather "mixed," and each has seemingly said all he has to say, it may be as well to close it now. Your readers will have got something on which to reflect, and let us hope the younger among them may be led to study the teachings of science, and so lay a solid foundation on which to build the superstructure of after experience, as well as serve as a guide in practice. In the meantime kindly allow me to put myself right with "INQUIRER" and "B." If the former reads again my previous letters he will see that my surprise was not that manufacturing analysts should ignore potash, but that he should suppose scientific men should do so; therefore, although in my last communication I say that manufacturing chemists put too little value on everything except nitrogen and phosphates, the inconsistency is only seeming, for between the searcher after truth and the seeker after money there is a great gulf fixed. Our foremost scientific men recognise what our manufacturers of manure often ignore, but our reliance is in the discoveries and teachings of the former.

The sentence which puzzles your correspondent—namely, "I ventured to doubt that the potash in the kainit had anything to do with the manure" should have been "to do with the matter," and I still doubt so; at the same time this is not saying anything more than that I fail to understand it. I have procured a copy of the report, and shall, as soon as I can find time, cull a few facts from it for the benefit of your readers, and the most noticeable of these is that a combination of kainit and phosphates produced extraordinary results. Such a mixture may be compared with "fimus," and both may owe their value to the magnesia and phosphates; but I may add that Dr. Sullivan attributes the action of the kainit to the potash, adding that the other ingredients in potash exercise little or no disturbing effect, with which "INQUIRER" would not agree. In many of the nice points raised I am only a learner and a searcher after light. Because of this I will not further seek to encroach on your space at present—not even to clear myself of the entanglements that have crept around the subject, partly because it would cause a retreading of the circle, partly because it would take too much space.

To "B." I have to say, that having found the use of common salt and nitrate of soda useful, I felt bound to recommend their use to others situated as I am. It by no means follows that I have thereby committed myself to the out-of-date idea that soda is indispensable after so many have proved that it is not. A dozen authorities could be named who have shown that plants may be grown without it, and that the older chemists who give it such a high place in their analysis have not sufficiently distinguished between the alkalies found in plants.

So long as unbroken pieces of stone remain, so long will there remain unavailable supplies of plant food ready to be dissolved out by acids even on "B.'s" gravel walks.—SINGLE-HANDED.

GENTIANELLAS—ROCK BEDS.

SIX years ago I had a hundred sturdy plants of *Gentianella acaulis* from Darley Dale, probably from the nursery garden to which Mr. Dod refers on page 431, but none of them flowered freely till this year. Some were planted along the margin of a border for hardy perennials, and others in some rock beds. The plants in the perennial border have occasionally had a few flowers, never a profusion; this year they had none, yet those in the rock beds were so full of bloom that hardly a leaf could be seen—and such blooms! What flower have we to compare with the glorious deep blue of this best of all the Gentians? An elderly gentleman on seeing the rock-bed plants in full beauty declared that never in his life had he seen it so full of flowers. It was the loving recollection of a long row of it I once had thoroughly established at the foot of a south wall and regularly crowded with flowers every spring that induced me to plant it again.

The plants in the rock beds are all low down near the margins, yet in this position they are a little elevated above the level of the surrounding ground, and consequently enjoy the benefit of a proportionately greater depth of soil and freedom from any accumulation of water about the roots. Slowly and surely have they spread into large flourishing clumps, and it is hoped that the abundant blossom which has so amply rewarded our care and

patience this year may be taken as affording an indication of thorough establishment, and a promise of future displays every year.

Rock beds are so ornamental, so constantly attractive, and afford so many nooks and corners for vernal gems, and in fact for plants of all seasons, that I would fain plead for space for at least one in every garden. They may be made of any size or form, and may rise to a central height of from 1 to 6 feet as may be best in keeping with surrounding features, the lesser heights being best for a flat and formal style, and the greater for a broken undulating surface. The arrangement of the rocks is not difficult to a person of cultivated taste, the aim being to have much of the rock visible among the plants, so that it may be seen in picturesque combination with them, and also to afford sheltering nooks and elevated stations to such plants as may require it, all which is compatible with harmony of design. Mark the term, for it is important that there should be character and unity in the formation of a single bed or a group of beds. The best results are obtained when the rocks are placed very much as they would be naturally. In making some beds with pieces of sandstone a pleasing effect was imparted to them by putting the bottom of each stone into the soil instead of laying them upon it, bringing the stones very near together with fissures and pockets of soil; a series of hollows and valleys suitable for a variety of plants, the whole presenting the appearance of a submerged rock with its rugged top projecting through the soil, no regular height being given to the centres of the beds, a rocky peak sometimes projecting boldly on one side of a central hollow, the surface rising to an elevated plateau upon the other side.

By careful planting charming little pictures were gradually produced, containing in miniature all the elements of a landscape. Just before the flowers of the *Gentianella* began to fade one portion—a mere corner of a bed—was very beautiful. A clump of *Gentian* so full of bloom that some of the flowers bent downwards to the turf; a fine specimen of *Erica Foxii* behind and above it between three "rocky peaks;" an *Azalea amoena* in the background, with its bright pink flowers just opening into beauty; on the right a cushion of *Thymus lanuginosus* spreading its soft downy growth over the top of a flat rock and up the sides of others; a *Kalmia nana*, a pretty low pigmy spreading bush admirably adapted for such a position; a *Phlox subulata*, various little *Saxifragas* clustering around the base of the rocks; a bold handsome plant of *Erica carnea* crowning an elevated plateau upon the right; a spike of *Saxifraga pyramidalis* springing out of a central hollow near the *Erica Foxii*, with its pretty red buds as yet concealing the pure white blossoms that have since then been so lovely. These few familiar plants so seen in combination with the rocks and the undulating surface of the bed had an attraction which drew one to the spot repeatedly to admire and enjoy with a zest that is by no means common, simply because it is not often felt in the contemplation of an ordinary flower bed.

Other flowers equally lovely in their way and equally suitable for rock beds crowd upon the mind as I write. The creeping *Forget-me-not*, *Omphalodes verna*, with its pretty deep blue flowers; *Harrison's Musk*, that is just now so gay with its dense masses of soft yellow flowers, and is so easily established and managed among the rocks; *Daphne Cneorum*, for which a special station of pure peat is prepared, its sweet-scented pink flowers being worthy of our best care in their production. The deep blue *Lithospermum prostratum*, which has been in full bloom for some months; *Saponaria ocymoides*, so bright now with its profusion of rosy pink flowers; *Linaria Cymbalaria*, that spreads its slender growth with such surprising rapidity at this season of the year, and which, although common enough in some localities in its wild state, is worthy of a place among our choicest plants. *Sunroses*, *Cyclamens*, *Hepaticas*, hardy *Primulas*, bulbs of various kinds, *Statice*s, dwarf *Pentstemons*, *Oxalis*, and annuals, especially the brilliant *Portulacas*, the *Saponarias*, and *Dianthus*es.

No mention has been made of the larger perennials. I am fully aware that many of them are often used to good purpose among rocks, and I have seen some beds of them that were very striking quite recently; but to use them one must have large masses of rock altogether different to the lower beds, of more lasting beauty, to which I have endeavoured here to call attention.—EDWARD LUCKHURST.

QUEEN WASPS.

I CANNOT but think that your readers interested in wasps must be disappointed, as I am, at "DUCKWING'S" few lines, page 466. For myself, I am not only disappointed, but I think them hardly fair. At page 260 "DUCKWING" heads an article "Popular Fallacy about Queen Wasps," and states "it has been

shown over and over again that an abundant flight of spring wasps [queens, as he allows them to be in a subsequent letter] is no earnest of a corresponding summer flight, but rather the contrary; and the note of any half dozen consecutive years would prove this to anyone who kept his eyes open." "DUCKWING" is asked his ideas of wasp economy to prove this assertion of his; an assertion, be it remembered, which, if it be incorrect, may do a great amount of injury by checking the destruction of the spring wasps. The reply is, "I have never studied nor professed to study." Am I wrong in thinking that under such circumstances it would have been better for "DUCKWING" to avoid censuring a practice concerning insects which he has never studied?

As to the remark about fertilised and unfertilised queens, and my words and meaning being self-contradictory, I will leave those who know most of that class of insects to judge. My remarks in both my former notes I believe to be perfectly intelligible to them.

"DUCKWING'S" conclusion is the most extraordinary part of the whole correspondence—"I do not doubt that the spring queens are the parents of the autumn nests." Well then, surely the killed queens cannot make autumn nests, and thus every spring wasp killed is, spite of "DUCKWING'S" dictum, a nest the less. This is all the killers of queen wasps have contended for. We say—as says "DUCKWING" now—that the early wasps are the parents of the nests, and we, in our simplicity, believe that if we kill this queen she cannot be the parent of a nest.

It is well known to all entomologists and all watchers of insect life, that certain years are remarkable for a larger number of certain insects. It is also well known that the following years may be as extraordinary for deficiencies. There are many things that may account for this—the birds, ichneumons, and other enemies of the insect may also have been present in larger numbers, and so although extraordinary numbers were present, these have been killed in proportions perhaps beyond their numbers. This may be the explanation of "DUCKWING'S" remark at page 260, that "the abundant flight of spring wasps is no earnest of a corresponding summer flight, but rather the contrary." Many of us, I apprehend, will nevertheless strive to aid this lessening in the case of injurious insects, and that in one sense the wasp is, by destruction of the parents.

The half dozen consecutive years given us by Mr. Taylor wholly disprove "DUCKWING'S" reasoning.—Y. B. A. Z.

I HAVE no wish to enter into the controversy respecting wasps, but perhaps you will allow me to state a few facts in reference to the matter. My experience of last year's queens and the following results convince me of the truth of "DUCKWING'S" statements. I have for several years paid for what are called queen wasps. Last year they were very numerous, and many more were caught and killed than in any previous year, and I looked forward to the Plum, Pear, and other summer fruit crops with grave forebodings, for I knew many hundreds were left at large; but my astonishment was great indeed when not a worker, or rather a fruit-eater, appeared at the end of July. August passed, and I think it was early in September before I saw one.

If "Y. B. A. Z." reads the above remarks he will think I was pursuing the right course by killing all we could. But see how my neighbours fare who never practise queen-killing, and one of whom said to me, "We have as many queens about the grounds and in the houses at this season—spring—as we sometimes have workers in summer." Now in this case there should have been myriads in summer and autumn, whereas there was not one.

In a contemporary last summer a correspondent wrote inquiring what had become of the wasps. Evidently he had none; in fact for many miles round this neighbourhood the inquiries were similar. And I now ask if "Y. B. A. Z." can account for this singular occurrence?—JOHN EASTER, *Rathdaire Gardens*.

ANEMONES.

THIS genus is extensive, including a large number of species varying considerably in appearance. They are distributed throughout Europe, some being regarded as natives of this country, but it is doubtful whether they are more than naturalised denizens. *A. nemorosa*, the common Wood Anemone, may perhaps claim native right; but *A. apennina* and *A. ranunculoides*, although plentiful in some localities, must not, we think, be so considered. Some species also occur in the United States of America, Persia, Eastern Asia, India, and Japan, while one or two occur in Cape Colony. They all inhabit temperate regions, the Indian species occurring at high elevations, and some of these are not hardy with us, although we often see them quoted as being so; for instance, *A. vitifolia* has often been reputed hardy, but my experience of

it does not confirm that, as it dies even during moderately severe winters.

As hardy border and alpine plants *Anemones* certainly deserve attention. Many of them are particularly desirable on account of their early flowering, producing when others are scarce pretty, and in some cases brilliant, flowers. The varieties of *A. hortensis* are especially valuable for spring flowering; and what is more charming than broad beds of the modest Wood Anemone? The failing is, we do not see half enough of it in our gardens. To the enthusiastic cultivator of hardy flowers it is a genus to be worked at, and if all the species possible to find be brought together there will not be found one with a weedy appearance. *A. coronaria* and *A. hortensis* are most characteristic florists' flowers, and by continued attention at the hands of the hybridist have yielded a very showy family of hybrids in both double and single form which are in great demand. The flowers of these varieties are very useful in a cut state, possessing a very high tone of colour, and



Fig. 95.—*Anemone sylvestris*

none the less valuable are the autumn-flowering Japanese kinds for the same purpose, especially the white-flowered variety, which is extensively employed for all kinds of floral work.

There is not much difficulty in their cultivation, as they succeed in most soils and positions. Generally speaking, however, they prefer light, rich, loamy soil in well-drained and sunny situations. The Japanese kinds enjoy damp places, the variety *alba* developing in such positions to very grand dimensions, and is then extremely showy. They are readily increased by division or seed. Many kinds, such as *A. japonica*, *A. alpina*, and *A. sulphurea*, with fleshy roots are readily increased by cutting such roots in pieces an inch or more long in the autumn or very early spring, and pricking them off in pans placed in a cold frame or cool greenhouse, when the upper end will rapidly callus, bud out, and form fine little plants, and in that way a large stock can be rapidly secured. In raising them from seed it is best to sow in pans, and place them in a cold frame or cool house shaded from

sunshine, and with proper treatment as to watering they will germinate freely enough, some kinds much more quickly than others, as I have known many lay for months before germination, even as long as twelve months in the case of *A. narcissiflora*. The young plants only require pricking off into pans and finally planting out in rich soil, when they rapidly make good flowering plants. The species and varieties briefly described below are all attractive plants and well worth growing, especially where hardy plants are encouraged. All are good border kinds, and many of them can be fittingly employed for the embellishment of the rockery.

A. alpina.—A very lovely species found in Central Europe, also a dwarf form occurs on the Rocky Mountains. It grows 12 to 18 inches high, with hairy many-lobed leaves on long stalks. Flowers numerous, 2 inches or more across, white internally and pale purple outside.

A. sulphurea I regard as a good variety of the above. It is similar in all respects except the colour of the flower, which is sulphur yellow. They are both charming plants, enjoying rich sandy loam in a warm position, the flowers appearing in May and June.

A. apennina.—Native of Southern Europe, also occurring in some British localities. It has divided foliage and bright blue flowers, the petals of which are narrower and more numerous than in our common Wood Anemone, and the rhizomes are thicker and shorter. There is a variety *blanda* with sky-blue flowers, appearing very early. A white-flowered variety also, about the same size as those of the typical form, is very lovely. They are all well adapted for spring bedding, also for naturalising in woods, wild places, and by the margins of lakes, where they will take care of themselves, flowering during the early part of the year.

A. coronaria.—Native of the Mediterranean region, known by the ternate finely divided leaves and brilliant coloured flowers, varying considerably—scarlet, blue, purple, nearly white, or striped. There are also double-flowered forms, equally variable and very desirable as decorative plants. They may be had in bloom from early spring to autumn by planting them out at intervals from October to April, where they will flower very freely in light rich soil, and yield a constant supply of flowers at a very trifling cost in labour and outlay.

A. decapetala.—A very pretty Californian species growing from 12 to 18 inches high. Leaves ternate, much divided, light green. Flowers about 2 inches across, creamy white, full-petalled. This is a pretty rock plant, free-growing, flowering in June and July.

A. japonica.—A strong-growing species, native of Japan. It grows from 1½ to 3 feet high. Leaves rough, variously lobed, or sometimes nearly simple, on long stalks. The flowers are numerous on freely branching stems, quite 3 inches across, of a rosy red colour. The variety *alba* with its large pure white flowers is very valuable. Hybrid is a form intermediate in colour between the last two. The flowers are very fine. These are among our most useful autumn flowers and should be largely grown, as there is no difficulty attending their cultivation when once established in any position.

A. multifida.—This occurs in the Northern United States. It grows from 9 to 12 inches high, with numerous lobed leaves covered with long silky hairs. Flowers freely produced, about 1½ inch across, of a pale red colour. There is also a variety named *Hudsoniana* from the same part, similar to the type, with white flowers and very floriferous. They succeed well in damp positions, flowering during May, June, and July.

A. narcissiflora.—A handsome Russian plant growing from 9 to 12 inches high, with freely divided silky foliage, giving the plant a greyish appearance. Flowers in umbels, yellowish white, about an inch across, on long footstalks. This is probably the most distinct of the genus, a beautiful plant for the rockery or a sandy border, flowering during May and June.

A. nemorosa.—This native species has divided leaves and numerous flowers, white inside and tinged with red outside. There are several double-flowered varieties which are very free and showy. *Alba plena*, pure white; *rosea plena*, light rose-coloured flowers, very pretty, but not so common; *bracteata plena*, flowers white, surrounded by green bracts, very distinct. There is also a most beautiful variety named *Robinsoniana*, with stouter foliage and very much larger flowers of a pale sky-blue colour and very gracefully disposed. A blue-flowered variety is found in the western States of America.

A. palmata.—A South European species of dwarf habit. Leaves roundish cordate in outline, but palmately lobed. Flowers about 2 inches across, bright yellow, very freely produced. This is one of the most handsome plants where it is quite at home. It delights in a compost of loam and leaf soil in a damp situation on the rockery, where it will succeed if left undisturbed, flowering during May and June.

A. Pulsatilla.—This species occurs wild in a few localities in

this country, also in other parts of North Europe. It grows not more than 6 inches high, with finely divided hairy foliage. Flowers 2 inches or more across when expanded, deep purple, covered externally with long silky hairs. There is another kind very similar named *Halleri*, but I do not remember any distinction between them. They are both early-flowering (April and May), and very pretty, succeeding well on the rockery, or in a warm and sandy position in the border.

A. ranunculoides.—This is known as the yellow Wood Anemone. It is very similar to the common Wood Anemone in other respects than the flowers, which are bright yellow, about the same size as those of the latter kind. It is a pretty plant for the rockery, border, or woodland, flowering during April and May, and is found in a few British localities and distributed throughout Europe.

A. stellata.—This is also known as *A. hortensis*. The typical form is a native of Southern Europe. It has ternate leaves, not so finely divided as those of *A. coronaria*, and star-like flowers of a light purple colour, but varying considerably in colour. There are now a large number of hybrids with both single and double flowers, scarlet and purple, which are extremely showy, the colour of many being particularly brilliant. There is also a beautiful natural variety from the Greek Mountains, which produces large dazzling scarlet flowers with full petals during the spring and summer months. It is called *A. stellata fulgens*, and succeeds well in ordinary borders, and when in good condition it is one of the most attractive plants possible to possess.

A. sylvestris.—This beautiful species is a native of Germany, growing from 1½ to 2 feet high, with deeply palmately lobed leaves and numerous flowers nearly 2 inches across, white, appearing during May and June. It succeeds well in ordinary soil, and we consider that amongst the spring-flowering species of Anemone this should have a similar place to *Anemone japonica* amongst the summer and autumn-flowering kinds. The woodcut (fig. 95) is a faithful representation of a spray of this charming species.—J.

ALEXANDRA PALACE DECORATIVE EXHIBITION.

JUNE 10TH.

THE first of the Shows for the present year at the northern Palace was held on Saturday last, being devoted to bouquets, buttonholes, table decorations, Pelargoniums, and miscellaneous ornamental designs with flowers such as floral arches, &c. Though the display was not extensive, the hall at the east entrance was well filled, the exhibits being arranged to the best possible advantage by Mr. J. Forsyth Johnson.

The contributions in the class for table decorations constituted an important feature, and in the leading arrangements much taste was manifested. Miss A. Williams, Victoria Nurseries, Upper Holloway, was adjudged chief honours for a table set for twelve persons, bright, graceful, and informal. The principal stand had a central tube filled with *Rhodanthes*, *Centaureas*, and Grasses, three lower branches containing chiefly *Masdevallias*, *Saxifrages*, and Grasses, the base being formed with *Cattleyas*, red *Bouvardias*, and Fern fronds. Two end designs were formed, plants of *Cocos Weddelliana* as the centre, with *Epidendrum vitellinum*, *Bouvardias*, scarlet Zonal Pelargoniums, *Chrysanthemum frutescens*, and Tuberous Begonia flowers, sufficient Fern fronds being employed to tone the whole agreeably. The fruit comprised Apricots, Cherries, with white and black Grapes. Miss A. W. Stuart, 84, Seven Sisters Road, Holloway, secured the second position with an effective arrangement, but scarcely light enough, since the principal flowers employed were *Brassia caudata*, *Sobralia macrantha*, Tuberous Begonias, and *Masdevallias*. Mr. W. J. Buster, St. Mary's Cray, followed with a neat design, but not sufficiently bright nor diversified; *Rhodanthes* with fronds of *Lygodiums* were gracefully employed. Miss A. Williams was again the most successful competitor with a table set for six persons; and instead of the formal glass stand in the previous exhibit, a graceful plant of *Cocos Weddelliana* formed the centre, surrounded by *Centaureas*, *Gladiolus Colvilli albus*, *Anthurium Schertzerianum*, *Stephanotis*, *Oncidiums*, and *Gloxinias*; small end glasses containing *Rhodanthes*, *Centaureas*, and Grasses. Miss E. Sperling, 31, St. George's Road, Regent's Park, was second with a design in which *Bouvardias*, Cactus flowers, and *Eucharis* formed the chief features. Mr. Buster took the third place with a table on which scarlet Zonal Pelargoniums and *Linums* predominated.

The best bride's bouquet was shown by Miss Williams, and comprised a choice selection of flowers. *Phalenopsis grandiflora*, *Eucharis*, *Odontoglossum Roezlii alba*, *Gardenias*, Tuberous, white Roses, and the double *Tabernaemontana* were freely arranged with a due proportion of *Adiantum gracillimum* and *A. cuneatum*. Mr. J. Prewitt, Hammersmith, followed with a pretty but less choice bouquet, Mr. W. Brown of Richmond being third with a neat arrangement of well-selected flowers. For three bridesmaids' bouquets Mr. Prewitt gained chief honours with combinations of *Bouvardias*, *Eucharises*, *Azaleas*, Zonal Pelargoniums, *Spiræa*, and Fern fronds, the

bouquets being of moderate size and well made. Mr. J. Curtis, Kew Road, Richmond, obtained the second place, *Centaureas* being so abundant and prominent in his bouquets that some dissatisfaction was expressed with the award. Mr. W. Brown was third with arrangements of Carnations, *Stephanotis*, *Roses*, and *Forget-me-nots*. But Miss Williams' exhibit in this class, though not honoured with an award, was by many preferred to all the preceding; one bouquet, in which Moss Rose buds were freely employed, being charming. For three ball bouquets Miss Stuart carried off the leading prize with very bright and effective combinations of red *Bouvardias*, *Eucharises*, *Roses*, *Primulas*, *Tuberous Begonias*, *Lilies*, and *Gloxinias*. Mr. Brown was a close second, having chiefly *Oncidiums*, *Roses*, *Gardenias*, and *Carnations*. Mr. J. Curtis secured the third position with neat arrangements of *Chrysanthemum Etoile d'Or*, *Maréchal Niel* Rose buds, *Tuberose*, white *Campanulas*, and *Gloxinias*.

Buttonholes were very numerous, eleven collections of six being staged. Miss A. Williams followed up her success in the other classes by again taking leading honours with half a dozen very neat buttonholes chiefly composed of Orchids, with *Bouvardias*, *Masdevallia Lindenii*, and *Tabernaemontana* being tastefully employed. Miss Sperling was second, having *Epidendrum vitellinum*, *Tuberose*, *Torrenias*, and white *Bouvardias* in various combinations. Miss Baines, Fern Cottage, Palmer's Green, Southgate, was a very good and close third, *Hoya bella*, red *Bouvardias*, and *Dendrobiums* being the principal flowers employed. Bouquets of wild flowers were shown by Miss Baines and Messrs. Buster and Prewitt; flower stands being contributed by Misses Sperling, Baines, and Cluse.

The competition in the classes for *Pelargoniums* was not keen, being confined to two exhibitors. For six Fancy varieties Mr. Wiggins, gardener to H. Little, Esq., Uxbridge, gained the leading prize with well-flowered specimens of *Duchess of Edinburgh*, Miss Hart, Madame Sainton Dolby, and *Goliath* amongst others. The best nine Show varieties were also shown by the last-named; healthy and fairly good examples of *Blue Bell*, *Duchess of Bedford*, *Sultana*, and *Digby Grand* being the most noteworthy. Mr. C. Hammond, York Lodge, Stamford Hill, was second with smaller but neat plants, Rob Roy, Maid of Honour, and Kingston Beauty being especially good.

FERTILISERS AND POTATOES.

CHLORIDE OF POTASSIUM.

THAT chloride of potassium sometimes fails to give the successful results which are expected to follow its application is not, probably, disputed either by "AMATEUR, *Cirencester*," or by his "friend, who is a chemist and understands these things" (see page 470 of the Journal); but surely we may reasonably look for more assistance (from the happy individual who understands that which Liebig, Voelcker, and other chémo-agricultural writers have been unable to comprehend) than can be derived from being told that "there is no faith to be reposed in the formula put forth by Mr. Jamieson," and "that Mr. Jamieson must carry out his experiments on larger plots of ground before his results can be taken as settling the question." I should have thought that a theory might be equally good or incorrect without any experiments at all, and I may mention that this same argument of small plots was the principal one advanced against Mr. Jamieson's theory on soluble and insoluble phosphates, which may now be taken as nearly, if not quite, proved to be correct.

But is "AMATEUR'S" letter perfectly just either to Mr. Jamieson or even to myself? In allusion to the disastrous effects which the chloride of potassium occasioned in some of his experiments, Mr. Jamieson asks, at page 35 of his report, "What is the explanation?" "This question," he says, "has been often before my mind since the injurious action was apparent, and I am not at all sure that the solution at which I have arrived will explain and agree with all the phenomena;" and, for my own part, so little have I put Mr. Jamieson's theory forward as an undoubted truth requiring no further discussion, that whilst admitting that it commends itself to my own mind, I called attention to it in your pages, because "many of your correspondents must have had experiences tending to prove or disprove his theory." I, therefore, assert that neither the author of the theory, or rather hypothesis, nor I, who have been the means of procuring for him (shall I say?) this undeserved "snub," have given any grounds whatever for assuming that we maintain that "his results can be taken as settling the question."

P.S.—In my letter, published last week at page 466, the word "truthfulness" has been printed instead of "hurtfulness," which was intended.—INQUIRER.

VIOLA BLUE BELL IMPROVED.—This is decidedly the best of the blue section of *Violas* that I am acquainted with, and worth bringing before the notice of those of your readers who go in for spring and summer bedding. When planted in masses and seen from a distance it has a most charming and telling effect; so also it has when planted out in beds alternately with such things as *Pelargoniums Bijou*,

Golden Harry Hieover, *Dactylis glomerata*, &c. From spring till autumn it may be said to be a continuous bloomer and is exceedingly floriferous, the flowers being of a rich indigo blue in colour.—J. H.

ORCHIDS IN JUNE.

DURING the next two months the grower's time will be taken up mostly with attention to the autumn and winter-blooming *Cattleyas*, such as *C. crispa*, *C. Trianae*, *C. Warscewiczii*, &c., giving them every encouragement and keeping them near the glass, so that they may form strong growths with sheaths which will insure a fine display of flowers in the dull season.

The *Dendrobium* house looks well with the rich display of blooms afforded by *D. aggregatum*, *D. albo-sanguineum*, *D. cretaceum*, *D. Devonianum*, *D. dixanthum*, *D. densiflorum* and *album*, *D. fimbriatum oculatum*, *D. infundibulum*, *D. Jamesianum*, *D. Peirardi*, *D. Parishii*, and *D. thyrsiflorum*, all of which are at present in perfection.

Many of the *Masdevallias* are now in different stages. Those that have ceased flowering should be returned to their growing quarters, as they soon suffer if allowed to remain in a dry atmosphere, which causes them to lose their leaves.

Cœlogynes will require to be closely looked to, and will require plenty of water, with an occasional supply of liquid manure, as will also *Cypripedium Chantini*, *C. Harrisianum*, *C. insignis* and varieties, *C. Maulei*, and *C. villosum*.

Aerides crispum, with its lovely drooping spikes of fragrant flowers, which are pure white in colour with a crimson-tinted lip, is blooming well. It succeeds in the coolest end of the East Indian house with plenty of light, but protected from the direct rays of the sun. *Aerides Larpentæ*, a scarce species, is bearing fine spikes of numerous creamy white flowers, shaded with rose at the extremities. *Aerides Lobbiani*, an exceedingly showy Orchid, is producing its long elegant spikes of delicate rosy pink blossoms. *Aerides odoratum* is bearing in abundance its handsome pendent spikes of wax-like flowers, which are white tipped with rose, and most deliciously fragrant.

Cattleya Warneri and its varieties, of which there are several, are now producing their large beautiful flowers, varying from delicate rose to deep lilac with a rich crimson lip.

Cœlogyne pandurata is a curious distinct Orchid with pale emerald green blossoms, having black-spotted lips, and emitting a delicate perfume. It is now in fine condition. This may be called a sun-worshipping Orchid, the flowers following the sun in its course from east to west, and blooms which are turned towards the sunset in the evening will be found facing the sunrise in the morning.

Dendrochilum filiforme is now sending up its graceful thread-like spikes of beautiful golden-yellow flowers from its small bulbs, with grass-like foliage. This requires to be grown in the warmest end of the *Cattleya* house, suspended near the glass, in good fibrous peat, moss, and potsherds, with a liberal supply of water.

Epidendrum vitellinum is getting past its best, and if the flowers are not specially wanted the plants will be all the better if the flower spikes are removed, by which process good stout pseudo-bulbs will be formed before winter.

Odontoglossum Phalanopsis is producing its numerous spikes of pure white flowers with purple-striped lip.

Oncidium crispum is now charming with its long nodding spikes of from ten to twenty chocolate and amber-coloured flowers, which are elegantly crisped.—ORCHIDIST.

FRUIT CROPS IN SOUTH WILTS.

WITH two exceptions, Apples and Pears, fruit crops of all kinds are all that one can desire, and the most promising we have had for years. Apricots, Peaches, and Nectarines will be abundant. Three-fourths of their number have had to be pulled off the trees—an operation which, whilst being agreeable enough, requires a certain amount of courage on the part of the individual to whose lot the work is cast. It is always better to err on the side of taking off plenty rather than leaving too many, as then a full crop is more likely to be insured the following year. No hard-and-fast line can ever be drawn as to what might be considered a sufficient number of fruits for each tree to carry, as all depends on the vigour of each individual tree. It may, however, be safely stated that no tree is overcropped when, in addition to bearing its fruit, it makes a reasonable amount of wood and foliage, and *vice versa*. This point I may enlarge upon at some future time.

Plums and Cherries are plentiful, so also are Figs, Quinces, and Medlars. Small fruits are in the highest degree satisfactory. Strawberries are a week or ten days earlier than usual, owing to the fact of our experiencing so few of those late frosts which

invariably injure the earliest expanded flowers. Our first ripe fruit, Black Prince, was gathered on June 1st, and picking in earnest twice a day for breakfast and dinner will commence in the course of a few more days.

Raspberries are likely to be much finer than last year, perfectly formed fruit being the rule and not the exception as last season. Gooseberry and Currant bushes are literally breaking down with their loads of fruit, and are this year singularly free from caterpillars. To the terrific gale of April 29th we attribute our scarcity of Apples and Pears. The blossom was abundant and strong; and as we had no frost worth mentioning when they were in flower we are forced, as doubtless many others do, to hold the gale responsible for our loss.—ET CÆTERA.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, Col. R. Trevor Clarke in the chair, the following candidates were elected Fellows—viz., Mrs. Alexander, Bentley J. Bonnell, Lieut.-Col. Bridges, F. C. Briggs, G. R. G. Carlyon, William Cleaver, Rev. N. T. Devereux, Mrs. Dundas, Mrs. W. H. Emmet, Mons. Girardin-Collas, Col. Hemery, R.E., Mrs. R. Henderson, Mrs. George Hooper, Philip M. Justice, William Charles Logan, Octavius Warre Malet, Walter D. Marks, Mrs. Mildmay, Mrs. Porcher, John Edgecumbe Rendle, Walter F. Rogers, M.A., John Simson, Lieut.-Col. J. C. Stewart, G. G. Stone, James Townley, M.D., Dowager Countess of Winchelsea.

— AT the recent MANCHESTER SHOW we learn that the total number of visitors in the seven days was 51,300, as compared with 44,000 last year and 55,000 in 1880. The greatest number was on Whit-Monday—16,000, and the least on the opening day—3000.

— IN reference to the request of a Perthshire correspondent, Mr. Brierley informs us he has had five seeds of the CALVARY CLOVER given to him by a friend who brought them from Mount Calvary. Four of these have germinated. He will try if he can obtain a few more seeds, or would send a plant in answer to the above request. If our Perthshire correspondent will send us her address, which we omitted to preserve, it shall be forwarded to Mr. Brierley.

— WE have, fortunately, not often to record HAIL AND SNOW IN THE MIDDLE OF JUNE, yet on Monday last hail fell in London and much snow in Scotland. All around Balmoral we are told snow was lying to some depth, and late on Monday evening it was still falling very thickly. Easterly gales prevailed, and the cold was intense. The tops of the Grampian Mountains were white with snow. Nearly an inch of snow fell on Sunday in some parts of Fifeshire. Thunder and lightning prevailed for some hours over the eastern section of Perthshire. The unfavourable change in the weather has seriously checked vegetation. Mr. Taylor informs us that the thermometer on the grass at Longleat registered as low as 26° on Tuesday morning the 13th inst.

— MR. J. F. BARTER of Lancefield Street, London, informs us that an extra prize was awarded to him for the excellent display of MUSHROOMS AND MUSHROOM SPAWN that he contributed to the Manchester Show. By some mistake this award was not attached to his exhibit, and hence was not referred to in our report of the Show.

— MESSRS. JAMES CARTER & Co. announce a series of prizes for their new Peas Stratagem and Telephone, and Culverwell's Telegraph, varying in amount from £3 to 10s., at the following

Shows :—Chiswick, June 22nd; Royal Horticultural Society, June 27th; Richmond, June 29th; Bagshot, July 1st; Twickenham, July 7th; and Oxford, August 2nd. The particulars of the competition can be obtained from 237, High Holborn, London, and the prize schedules of the Societies respectively.

— IT is well known that the DUKE OF BUCCLEUCH GRAPE does not succeed everywhere, yet occasionally it is seen in very fine condition. A Vine in the collection of N. Clayton, Esq., at Lincoln, which we have seen during past years, produces good crops of fine fruit annually. A correspondent who has recently visited Mr. Clayton's gardens at East Cliffe House, informs us that "the bunches and berries are finer this year than they have ever been before. The largest bunch is 11½ inches in length, well filled with berries throughout, and all swelling regularly. Several of them are 4 inches in circumference, and have only fairly commenced their second swelling. Mr. Wipf, the gardener, leaves several inches of young wood at each pruning, and is careful in selecting what he considers the most promising buds. He has found the berries to stone far better since he has applied lime freely to the borders. The other varieties of Grapes in the same collection are in admirable condition."

— WE are requested to announce that the tenth annual Exhibition of the WOODFORD HORTICULTURAL SOCIETY takes place on Wednesday, July 12th, 1882, in the grounds of James Spicer, Esq., Woodford.

— WRITING in reply to "M. D.," Mr. C. Princep states that the pink LILY OF THE VALLEY and the gold and silver-striped, also a double form, may be obtained from Messrs. James Dickson & Sons, Chester. Now is the best time to replant, as the Lilies are now making roots and the tops do not suffer much. The same correspondent suggests that perhaps the following may be useful to those troubled with RED SPIDER:—Mix sulphur with petroleum, and paint the pipes or flue. He further recommends dry soap powder as the best plant wash he has yet used, and the fir-tree oil as a good scale-killer used separately. In return for this information Mr. Princep wishes to know "what is the effect of overheating vineries when Grapes are colouring."

— THE prize of £50, offered by the Corporation of Great Grimsby for the best design for laying-out the NEW PARK has, we learn, been awarded to Messrs. William Barron & Son, Elvaston Nurseries, Borrowash, Derby. There were twenty-four competitors. The site of the park was presented to the town by E. Heneage, Esq., M.P., and comprises twenty-seven acres.

— A NEW periodical, entitled the "FIELD NATURALIST AND SCIENTIFIC STUDENT," has just been commenced by Messrs. A. Heywood & Sons of Manchester, which is intended to be "a medium of intercommunication between naturalists and amateur scientists. The first number was issued at the commencement of the present month, and it will be continued monthly, each number containing twenty-four quarto pages of matter, in double columns, devoted to original communications upon natural history generally. Some of the most notable articles in the present issue are the following:—"The Architecture of the Woods," "The Sense of Locality in Animals," "The Beginnings of Microscopic Study," "Rare British Mosses," "The Coming and Going of the Swallow," and "The Topographical Distribution of the Nightingale in Great Britain." It appears to be carefully edited, and will doubtless be welcomed by many.

— WHEN lately on a visit to Cardiff we, as a matter of course, called at the Castle Gardens, which are under the skilful management of Mr. A. Pettigrew, and through his courtesy were shown the attractions of that noted establishment. We especially remarked Mr. Pettigrew's success in the growing of MELONS and CUCUMBERS. His mode of treating these has already been

described in the pages of this Journal; and though it is two years since we last saw the place, we find there is no diminution of the success with which these two crops are grown. The variety of Melon on which Mr. Pettigrew chiefly relies is Eastnor Castle, and such a crop we never saw surpassed; in a space of little over a square yard there were eight large and handsome fruit just beginning to assume their netted covering. The Cucumber is Cardiff Castle, a variety of Mr. Pettigrew's own raising. The abundant crop looked as if every fruit had been cast in the same mould. They were about 18 inches long, straight as a gun barrel, and with the least of neck possible. For prolificacy and excellence we never saw a better. Both the Melons and Cucumbers are grown in borders which are abundantly supplied with water and an occasional taste of liquid manure, and the great point is to keep the soil as dry as possible round the neck of the stem. This is done by rings of tin a foot in diameter and about 3 inches deep, and no watering is permitted within these rings. How the plants liked the treatment was visible in the mat of little fibres which was formed on the surface of the soil, and in the profusion of healthy fruit and foliage overhead.

— THE schedule of the ALEXANDRA PALACE HORTICULTURAL EXHIBITIONS is to hand. Contains particulars of the classes and prizes at the following Shows, in addition to those at the Decorative Exhibition held last week. The Rose Show will take place on Saturday, July 8th, when liberal prizes will be offered in twenty-nine classes—five for nurserymen, six for amateurs, and the rest open. The leading prizes are £10 for seventy-two trusses, £5 for forty-eight trusses, £20 for the best thousand trusses, and £10 for the best five hundred. A Gooseberry Show will be held on August 5th, a Floral Exhibition and Show of Gladioli on August 12th; an Exhibition of Grapes and Zonal Pelargoniums on September 16th, when prizes of £20, £10, and £5 will be offered for the best collection of Grapes in five varieties, three bunches of each, with numerous silver and bronze medals for the Pelargoniums. A Gourd Show will commence on October 7th, and Exhibitions of Hardy Fruit Trees and Shrubs on November the 4th and December 23rd. These are under the direction of Mr. J. Forsyth Johnson, from whom schedules can be obtained.

— AS the first of a series of HOLIDAY HANDBOOKS, issued at the popular price of a penny, under the editorship of Mr. Percy Lindley, we have a little work of eighteen pages, entitled "A Trip to the Ardennes: being a Fortnight in Southern Belgium." This gives in moderate compass many valuable hints and descriptive remarks for intending tourists, which will prove especially useful to those whose means are somewhat limited. Antwerp, Brussels, Namur, Durant, Spa, Liège, Chaudfontaine, Huy, and other towns are referred to, and their most important features indicated. The work is neatly printed on good paper, and is embellished with several excellent engravings, and when the series is completed it will form a useful source of reference for tourists generally. It is published at 125, Fleet Street.

— PARTS 25, 26, and 27 of LETTS' POPULAR ATLAS are to hand, and the fifteen maps they contain indicate the same careful and accurate execution which renders all those that have been hitherto issued so useful and reliable. Maps on a large scale of Italy, Austria, South-east Europe, Greece, and Russia, with beautiful plans of Brussels, Madrid, Rome, and St. Petersburg, are each alone worth the price of the parts.

— AT the next meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following papers will be read:—"A New Metal Screen for Thermometers," by the Rev. Fenwick W. Stow, M.A., F.M.S. "On the Effect of different Kinds of Ther-

mometer Cribs and of different Exposures in Estimating the Diurnal range of Temperature at the Royal Observatory, Cape of Good Hope," by David Gill, LL.D., F.R.A.S. "Account of a Cyclone in the Mozambique Channel, January 14th to 19th, 1880," by Charles S. Hudson. "Rainfall of Freetown, Mombassa, East Coast of Africa, 1875 to 1881," by R. H. Twigg, M.Inst.C.E., F.M.S.

— WE regret to learn that the noted horticulturist, MR. JAMES VICK of Rochester, United States, died on May the 16th, in his sixty-fourth year. This gentleman's name was well known to English horticulturists, chiefly by the monthly magazine devoted to gardening which was conducted by him, and also by his business, which has greatly extended in recent years. Mr. Meehan's American "Gardeners' Monthly" gives the following account of his life and progress.

"The immense influence Mr. Vick has exercised on the progress of American horticulture is too well known to need any more than a passing note at this time. Wherever a flower is grown in this broad land there will be hearts touched with sorrow at this mournful news. In more than a quarter of a million gardens there will be this summer monuments of flowers to remind that he who sent them has finished his labours. No man in his day has so endeared himself to the people. No man in private life was so widely known. His death will be mourned over the whole country. James Vick was, in the fullest sense of the word, a Christian gentleman. His daily life was a record of good works and kind deeds. The road from his heart to his pocket was ever a straight and a broad one, and no grass ever grew in it for want of use. To high and humble he was the same cheerful genial man, with a pleasant hopeful word for all. Mr. Vick died of pneumonia on the morning of May 16th after a very brief illness. He was born in Portsmouth, England, November 23rd, 1818, and was, therefore, about sixty-four when he died. He has been in his time printer, editor, publisher, merchant. He came to America in 1833, and learned the printer's trade in New York, and set type with Horace Greeley. From New York he came to Rochester, and became interested in various publications, among others the *Horticulturist*, and *Rural New Yorker*. When engaged on the latter he first commenced to grow flower seeds in his garden, and send them out gratis to those who, like himself, loved flowers. It made the commencement of his great business. He commenced the business practically in 1860. His success has been marvellous. Three thousand letters per day was not an unusual occurrence, and more per day has often been received. He has paid more than thirty thousand dollars per year for postage, and his *Floral Guide* has a circulation of over 200,000 copies. All this has been accomplished by hard work and faithful interest to his customers."

NOTES AT MANCHESTER.

THE Whitsuntide Exhibition in the great cottonopolis has now attained so wide a fame that horticulturists are annually attracted from all parts of the kingdom to the Old Trafford Botanic Gardens, to inspect the productions staged there in such numbers and of such excellent quality. By judicious observation a gardener may always gain a few hints of more or less service at gatherings of this kind; and whether he be an exhibitor or not, if his time be wisely occupied he will find ample to repay him for the journey. It is not only the Show itself that proves advantageous, but the fact that it draws together a number of practitioners from different portions of the kingdom, who by an interchange of ideas may benefit each other, is of considerable importance, for gardeners must fraternise when they meet at a Show surrounded by many triumphs of their art. Then, too, neighbouring gardens of note must be visited and specialties of culture observed, all of which extends the knowledge in various branches, and after spending a day or two in this way a gardener returns to his charge refreshed in body and mind, with increased interest in his duties. It would be quite safe to assert that at the majority of large exhibitions in England the greatest proportion of horticultural visitors are not competitors, and to this attractive power much of the beneficial influence of plant, fruit, and vegetable shows must be attributed.

ORCHIDS.

At Manchester the two leading features were the Orchids and the Clematises, opinions being divided as to which were entitled to precedence in merit. Mr. Bruce Findlay gave a very decided vote in favour of the latter, but Messrs. B. S. Williams of London and Anderson of Meadowbank were equally strong supporters of the Orchids for the place of honour. Magnificent as the Clematises were, still the weight of general favour was on the side of the more delicate and choicer productions, against which but one objection could be urged—namely, the fact that they were nearly all "made-up" specimens. Many very distinguished horticulturists have rightly opposed this system as contrary to the objects of a society; but at present there are no generally accepted views upon the subject, and except where the schedule is very carefully worded we see strange inconsistencies

in the awards, according to the particular fancy of the judges. One year enormous "specimens," comprising an unknown number of plants, are selected for the leading honours, and in another such a collection is disqualified, to the surprise and disgust of the exhibitor, who has a fuller appreciation of the inconsistency than would less interested persons. Much can be said upon both sides of the subject. In the first place, if at Manchester "made-up" specimens had been excluded, that portion of the Show would not have been one-fourth so extensive, nor a tenth so attractive to the general public, who must be considered if the financial success of an exhibition is of primary consideration. Secondly, one strong objection advanced against these specimens is that they do not fairly indicate the cultural skill of the competitor, as he who can command the longest purse or the largest collection of plants can produce the most telling results; but packing a number of plants together is not all that is needed to insure a handsome specimen, which must be well grown and well flowered to entitle it to notice. In many cases, indeed, it is more difficult to obtain such a specimen in good condition than a single plant of smaller size. At the same time it must be admitted that the would-be exhibitor who has only a moderate collection labours under a great disadvantage when single and made-up specimens are allowed to compete in the same class, and the only apparent way out of the difficulty is to provide a separate class for the single specimens at all large exhibitions, while at small shows any might be admitted, giving the awards to the healthiest and best flowered. While, however, such diverse ideas prevail schedules should expressly state whether made-up specimens are to be admitted or not.

One very remarkable quality possessed, with very few exceptions, by all the specimens staged, was the unusual abundance of flowers, not of poor size or faint colours, but substantial and rich. Cattleyas, Odontoglossums, and Dendrobiums fairly shared the honours between them, and a more varied or gorgeous display of those grand Orchids could not be desired. Cattleya Mossiae was especially well represented by some handsome varieties; the flowers large, the petals and sepals broad and richly suffused with rosy crimson, or delicately pale. Mr. G. Hardy's specimens were extraordinary, several being 3 or 4 feet in diameter, with five dozen blooms. Cattleya Mendeli was similarly good in the Timperley and other collections, and with C. Warneri formed a trio of the most beautiful species in a grand genus. Amongst the Odontoglossums the specimens of the effective O. vexillarium alone contributed an exhibition such as is seldom seen, both Messrs. Hardy's and Percival's plants being in superb condition; the flowers, too, were very deeply coloured—quite a rich rose in many instances. The charming O. citrosimum was also represented by several beautiful plants, with fine panicles of flowers, very warmly tinted. Such well-known and useful Dendrobes as D. nobile, D. lituiflorum, D. suavisimum, D. Wardianum, D. Jamesianum, and D. densiflorum occupied a prominent position; but there was one that is seldom seen at shows—namely, D. clavatum, that received much attention, partly from its comparatively rare appearance, and partly from the admirable health and profusion of flowers which distinguished it. Amongst the yellow-flowered Indian species this is scarcely surpassed, and when in such condition as that shown by Mr. Hardy it is remarkably handsome. With growths 2 to 3 feet high, abundantly clothed with rich yellow flowers somewhat suggestive of D. suavisimum in form and colour, it has a most telling effect. Cypripediums, Anguloas, and Masdevallias were in strong force, and similar vigorous health distinguished them all. As regards the exhibitors there were two notable absentees that have on previous occasions taken important positions in the chief amateurs' and nurserymen's classes—namely, Dr. Ainsworth and Mr. B. S. Williams; but in the former section Messrs. Percival, Dodgson, and Broome amply compensated for any deficiencies, and in the nurserymen's class Messrs. James and Cypher had the competition entirely to themselves.

HARDY PLANTS.

Turning to other features of the Show, the Clematises demand special praise, but as they are referred to at length in another page we will pass them to bestow a little attention upon the hardy plants, that undoubtedly constituted an attraction of no mean order. These plants are making steady progress in popular favour, especially amongst amateurs, who have insufficient means to incur the expenses attendant upon the culture of more imposing but often less graceful plants which require heated erections to insure their success. Further, a moderate collection of hardy plants needs no more attention than can be easily accorded after business or professional hours—an additional recommendation in small establishments. Recognising the public taste, too, many nurserymen have greatly extended this portion of their trade, and in consequence a collection including a good diversity of beautiful plants may now be purchased for a moderate sum, and a varied display can be provided during spring, summer, and autumn by an outlay of a few pounds. The collections shown at Manchester conveyed a good idea of the beauty and interest of such plants at this time of year; and though to some extent appearing formal when exhibited in pots, visitors have an excellent opportunity of observing those which are most effective or elegant.

Mr. W. Brownhill's plants were remarkably good, many being choice, and all were as healthy as could be wished. Very notable was a large specimen of *Opuntia Rafinesquiana* bearing numerous bright yellow flowers. Indeed, seldom is so fine an example of this attractive hardy plant seen. On a rockery it would have appeared to excellent advantage.

Veronica gentianoides, though it has no pretensions to be considered either choice or rare, is a useful plant, and well deserves attention, as the large specimens under notice clearly indicated. The tall stems (1 to 2 feet high) laden with pale lilac blue flowers, often slightly streaked with a darker hue, have a very pleasing effect in borders, but unfortunately they are not of very long duration—a few weeks at the most. In one of the London parks it has been freely employed for spring bedding this season with good results in suitable situations. *Saxifraga Wallacei* is becoming a general favourite, and deservedly, for its pure white large flowers are produced most profusely, and either in a pot or on a rockery it is unsurpassed amongst the other species of that section. The handsome *Iberis corifolia* with its large heads of pure white blooms, the brilliant double *Geum coccineum*, the pretty striped *Myosotis Weirleigh Surprise*, and innumerable others were scarcely less beautiful. In Messrs. Dickson's group two plants were particularly worthy of notice—namely, *Ourisia coccinea*, and *Meconopsis nepalensis*. The first is far too seldom seen, and by no means generally known to cultivators. It is of dwarf habit, with neat cordate dark green leaves and racemes 6 to 8 inches high of scarlet tubular flowers. The *Meconopsis* is a very distinct and attractive plant, which under good treatment attains the height of 3 or 4 feet and bears numerous open yellow or creamy flowers.

Mr. J. Broome's premier collection in the amateurs' class comprised some remarkably well-grown plants, forming an effective and interesting group that was much admired. The scarlet *Delphinium nudicaule*, the brilliant *Lychnis Haageana*, the fragrant and beautiful double *Narcissus Poeticus* were admirably represented, the last named being a specimen bearing a large number of its white *Gardenia*-like blooms. The purple-flowered, neat, and dwarf *Lamium longiflorum*, and the double variety of the common *Meadowsweet* (*Spiraea Ulmaria*), were two other notable plants, the *Spiraea* being in grand condition, and for decorative purposes—in a cool conservatory, for instance—it is most valuable. Good examples of *Armeria cephalotes*, *Orchis maculata*, *Hesperis matronalis* fl.-pl., and the Cobweb Houseleek (*Sempervivum arachnoideum*), added materially to the interest of the group. The most notable plant in Mr. Brockbank's choice collection was *Ramondia pyrenaica*, a charming little Solanaceous plant related to the Mulleins. In a sheltered nook on the rockery this is a gem, and even when grown in pans or pots for a cool house it is much admired. The leaves are heart-shaped, hairy above and brownish beneath, lying flat upon the surface of the soil, the flowers being produced in panicles 4 to 6 inches high, and are bright purple with a clear yellow centre. It is not difficult to grow, but well repays for a little attention, and it is rarely so fine a specimen as that under notice is seen at shows.

THE BOTANIC GARDENS.

Quitting the Exhibition and its numerous attractions, the various houses in the Gardens invited attention, for though there is no attempt at elaborate display, something can always be found worthy of note. In what may be termed the show house the great speciality was the *Schizanthuses*, which are remarkably well grown, and annually about this time of year produce a very pleasing display. The value of these has been repeatedly noted, but too much cannot be said in their favour as conservatory plants, for their appearance is totally distinct from the majority of those so employed; the flowers are extremely abundant, and the colours so soft that either large or small specimens are surprisingly effective. Wherever they receive the moderate attention required to insure fairly good results they invariably give satisfaction alike to the gardener and his employer. At Manchester large plants seem to be preferred, some being 3 or 4 feet in height, bearing clouds of flowers; but where there are shelves or stages to furnish, the smaller specimens are also useful, and seed can be sown at all times of the year to provide plants at any particular period, or in succession if necessary. *S. retusus*, *S. pinnatus*, and *S. violaceus* are the most effective, a packet of seed yielding many variously coloured forms.

In other houses Orchids are now largely represented, and the majority are in satisfactory condition, especially the *Cypripediums*, such as the old and still most useful *C. insigne*, which for winter flowering is unrivalled, particularly as regards the duration of the flowers either on the plant or cut. It is true such blooms are rather unsuited for arranging with other flowers, and with few exceptions they appear better alone, or accompanied by a little appropriate foliage. A number of large and extremely healthy specimens of this old favourite are grown there, and doubtless yield a fine display at the dull season. In the Victoria house the regal *Water Lily* is planted out and making steady progress, though it is as yet rather small. It enjoys a light position and usually succeeds well, producing its fragrant flowers in succession for a considerable time. The path by the tank is raised so that the visitor looks down upon the plant—a great advantage, and one which is fully evident in the old *Lily* house at Kew, in the grand tank at Chatsworth, and also in the case of that at Oxford. It has been a source of regret that the *Victoria* did not thrive in the old house at Kew, for as regards form and situation it was far better adapted for the plant than the oblong structure that is now devoted to it. In so few establishments can this handsome aquatic be grown, that where it can be accommodated it should at least be shown to the best advantage.

Some alterations are observable in the grounds, one of the most notable of which is the removal of the collections of herbaceous plants

from the geometrical beds in front of the Exhibition house. These were quite unfitted for the arrangement of the plants in their natural orders, and though at times attractive, they always had an irregular appearance, which their symmetrical form rendered more conspicuous. Now the collections occupy oblong beds in the style of those at Kew, in a more secluded portion of the grounds, and the others are devoted to ornamental purposes, though at present nothing very elaborate has been attempted. The most remarkable addition to the gardens, however, is the new range of glass houses erected to commemorate the International Exhibition held last autumn in honour of the fiftieth anniversary of the Society's existence. Though not so extensive or imposing as it was intended to be had the Exhibition yielded sufficient returns, yet the structures are useful, and possibly more so than others of a more pretentious character might have been. The

range is in five compartments, each about 60 feet long, span-roofed, lofty, light, and substantially though plainly built. They are occupied with miscellaneous stove and greenhouse plants, some of which already look considerably the better for their new quarters. The centre division is of oblong form, the base being sunk several feet below the level of the other houses, and has been most tastefully arranged as a rock fernery by Mr. W. Clapham of Stockport. The general design is very natural and picturesque, the material employed being Derbyshire tufa, which in skilful hands is admirably adapted for work of this kind, as, owing to its porous nature, young Ferns and Mosses soon become established upon it, completely clothing the rocks with verdure. Irregular walls, arches, pillars, pools of water, miniature cascades, and other devices are employed with a very just appreciation of their respective effects, and by the aid of two mirrors inge-



Fig. 96.—PHILESIA BUXIFOLIA.

niously let in the wall very pretty and surprising vistas are obtained. At present the rockery is not half clothed with plants, but satisfactory results may be expected in the course of a few months if the stock of Ferns is increased.—L. CASTLE.

(To be continued.)

PHILESIA BUXIFOLIA.

THIS charming shrub is far too seldom seen in gardens, and even where it is included in collections it is commonly in such indifferent condition that its real beauty cannot be imagined by

those who have never seen it well grown. When, however, it is thoroughly healthy and bearing a profusion of its rosy Lapageria-like flowers, it is certainly one of the most beautiful shrubs that can be grown in a cool house. The finest example we have yet seen was recently submitted to us by Mr. J. Crossling, Felton Park, Northumberland, and from this the woodcut (fig. 96) was prepared, which faithfully represents the characters of the plant and the floriferousness of the specimen sent.

Referring to the treatment which has produced such satisfactory results, Mr. Crossling writes as follows:—

"I had this plant in the greenhouse twenty years and it made

no progress—neither bloomed nor thrived, so I told one of my men to toss it into the wood; he did so, without the pot, under some large trees where the sun never shone. It remained there all winter, and I happened to pass the same place in May, and to my surprise it was in full bloom, the most lovely plant I had seen for a long time, blooming amongst weeds and leaves. I carefully took it back into the house, but it refused to grow, and looked as if it was most uncomfortable. I then potted it in bog soil, not peat, and placed it into a pit in one corner where it has not been exposed to the sun's rays for ten years. The pit has a north aspect and no artificial heat, and there it stands and blooms every May, lasting six weeks in beauty. I think it is a bog plant, for the pot is always covered with green slime, and will take any quantity of water; it produces large stems each season, like the *Lapageria*. It is one of the finest plants for exhibition if well grown."

Philesia buxifolia is a native of South America, where it was first found by Commerson in the Straits of Magellan, and since then several travellers have observed it both there and along the coast to Valdivia. Indeed Mr. Lobb, who first sent it to England when collecting for Messrs. Veitch & Sons of Exeter, stated that he found it growing from the sea level up to the snow line on the mountains, and that at the higher elevations it seemed to thrive best. It is found growing in large masses upon the trunks of trees, amongst rocks, and in boggy positions, where it assumes such a beautiful appearance that Sir Joseph Hooker has characterised it as one of the most handsome shrubs of the antarctic American flora. A specimen was first shown in this country from the Exeter nurseries at one of the Chiswick exhibitions, June 12th, 1853.

This *Philesia*, which is the only species in the genus, is closely allied to *Lapageria rosea*, and it may be remembered that Messrs. J. Veitch & Sons of Chelsea some years ago obtained a remarkable bigeneric hybrid between these two plants, which has been aptly named *Philageria Veitchii*, the first name being a combination of those of its parents. The flowers of the *Philesia* closely resemble the *Lapageria*, being of wax-like substance, bright rose in colour, and drooping. The leaves are narrow and dark green, somewhat suggestive of Box, from which the specific name is derived.

ROYAL HORTICULTURAL SOCIETY.

JUNE 13TH.

THIS meeting was chiefly distinguished by the number of new plants shown, several of which were of unusual excellence, Orchids, Gloxinias, and Tuberous Begonias being especially fine. The groups and some miscellaneous decorations were arranged in the two arcades, the conservatory having been prepared for the Evening Fête.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Parr, gardener to Mrs. Russell Sturgis, Givons Grove, Leatherhead, sent a dish of Sir Joseph Paxton Strawberry remarkably well grown, and was awarded a cultural commendation. He also exhibited a dish of Brown Turkey Figs, which received a similar award. Messrs. Carter and Co., Holborn, exhibited a plant of their new Perpetual Parsley, which was passed, also of the Fern-leaved variety. Messrs. Sutton and Sons of Reading exhibited their excellent Broccoli called Suttons' Late Queen, but it was rather passed its best, as the heads were what are called "frothy." Mr. John Hamlin, Green Lanes, Wood Green, exhibited some good Mushrooms grown out of doors, which received a letter of thanks. Mr. Carmichael sent a seedling Melon called Newton Court, a round yellow slightly netted fruit, but the fruit being deformed the flavour was inferior, and the Committee recommended that it should be shown again.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Messrs. J. Veitch & Sons, Chelsea, exhibited a group of new plants, comprising several of considerable interest and beauty. Six very showy Gloxinias were staged, one named Garibaldi being remarkable for the rich colour of its flowers, quite a scarlet tint round the limb with a white-dotted throat. It is extremely free, the plant shown having over a dozen flowers. Prospero has finely formed blooms of a rich rose tint; Robin Hood, very deep scarlet edged with a lighter shade; Miranda, rich purple-shaded, white-dotted throat, large and effective; and Cordelia, white thickly dotted with purple, were all noteworthy varieties. *Adiantum fissum* with finely cut pinnæ, and *A. Legrandi* with dense fronds of small pinnules, were two distinct Ferns. *Nepenthes Mastersiana* is a new hybrid Pitcher-plant with neat very dark red narrow pitchers about 6 inches long. *Sarracenia porphyro-neura*

has greenish pitchers strongly veined with dark red, the lid being broad and erect. *Impatiens Sultanii*, a very pretty form which has been grown at Kew this year and referred to in these pages as a nearly ally of *I. Walleriana*. It has small rosy scarlet flowers very freely produced from the axils of the leaves near the summit of the stems. *Aerides formosum*, a supposed hybrid between *A. Larpentæ* and *A. odoratum*, is quite distinct from either parent, having rosy streaked flowers.

Mr. H. Spyers, Orchid-grower to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, had a small collection of handsome Orchids, among which *Cattleya gigas burfordiensis* was particularly notable. One spike; five grand flowers, each 9 inches or more in diameter, the lip being 5 inches long, 3½ inches broad, crisped at the margin, and very rich crimson; the throat being yellow veined with crimson. *Masdevallia Harryana striata* had large but rather rough flowers striped irregularly with maroon on a rosy-crimson ground. *Zygopetalum expansum* is a pretty form somewhat in the way of *Z. Gaudieri*, the leaves long, narrow, and drooping; the flowers with a broad, elliptical, partially lobed, deep purple lip, and green sepals and petals barred with brown. *Vanda limbata* had two spikes of its curious rich brown flowers, the lip being pale pink. Mr. Salter, gardener to J. Southgate, Esq., Selborne, Leigham Court Road, Streatham, was awarded a cultural commendation for an exceedingly well-grown specimen of *Cattleya Warneri*, bearing three spikes having four, five, and six flowers. The variety was also a good one.

Mr. T. S. Ware, Tottenham, contributed a choice collection of hardy plants, in which *Liliums* predominated. *L. elegans robustum*, with fine yellow flowers dotted with dark red, was very distinct and effective; the orange-scarlet *L. pomponium*, the pale yellow-dotted *L. colchicum*, the deep orange *L. croceum sanguineum*, and the small but pretty yellow *L. parvum*, *L. columbinum*, *L. pulchellum*, and a distinct variety of *L. pardalinum* were also represented. Several notable seedling varieties of *Orchis foliosa* were shown, some with very dark purple flowers and others pale or streaked. *Cypripedium spectabile* with its white and rose flowers was well shown. The trailing yellow-flowered *Tropæolum polyphyllum* and the hardy small red-flowered *Bomarea oculata*, with the fine white Pink Mrs. Sinkins and the rich rosy crimson pink Lord Lyons, were all very attractive and interesting. A plant of *Tillandsia Furstenburgii* was exhibited by Herr Kirchoff of the Royal Gardens, Donaueschingen, Baden. It has long, narrow, spiny-margined leaves, somewhat like the Pine Apple, a dense spike of flowers 9 inches high arising from the centre, the chief beauty of which depends upon the large serrated lanceolate bracts, each 2 to 3 inches in length. Mr. W. H. Gower, Tooting, sent plants of the new Curled Golden Feather, *Matricaria eximea nana crispa aurea*, with neatly crisped foliage of a rich yellow tint. Mr. W. Stacey, Dunmow, exhibited blooms of a fine Regal *Pelargonium* named Lady Brooke, the flowers being of a fine purplish rose colour, the upper petals very dark maroon. The flowers and trusses were large.

Messrs. J. Laing & Co., Forest Hill, exhibited several handsome new Tuberous Begonias, together with a number of large and richly coloured flowers. Two good doubles were Madame Commesse, very full and deep flesh colour; and Glory of Stanstead, also very full rosy scarlet. Stella has enormous pink blooms of good form, and the Hon. and Rev. J. T. Boscawen has flowers of similar size of a rich scarlet hue. Mr. George of Putney Heath sent blooms of a handsome Ivy *Pelargonium* named Masterpiece, which had been derived from St. George, being, however, much superior to that variety. It exhibits a combination of the Zonal and Ivy-leaved characters; the flowers large, of excellent form, and of a peculiarly distinct rosy scarlet hue. It is one of the finest of its class. A cultural commendation was awarded to W. Cobb, Esq., Sydenham, for a specimen of *Epidendrum vitellinum Cobbianum*, having two branching spikes of large flowers about thirty each. The colour was also rich and deep. Messrs. Heath & Son, Cheltenham, sent two flowers of *Dendrobium formosum giganteum Lemoniana*, which were large and white, the lip being dashed with orange. Flowers of a pale yellow almost white *Viola* named Champion, slightly veined with violet yellow, were also contributed by the same firm.

A vote of thanks was accorded to Messrs. H. Cannell & Sons, Swanley, for a grand collection of double *Petunia* blooms, white, rose, crimson, purple, lilac, and parti-coloured flowers being represented, some being very deeply fringed; flowers of *Fuchsias*, *Pansies*, Tuberous Begonias, *Ranunculus*, and *Pelargoniums* were also shown in first-rate condition. Similar awards were also accorded to MM. A. Vervae & Cie., Ghent, Belgium, for plants of *Odontoglossum nebulosum*, bearing large flowers, and *Bollea caelestis* with several of its rich purple blooms; and to Mr. G. Duffield, Winchmore Hill, for a beautiful collection of seedling Carnations, comprising some charming varieties.

In the western arcade some extensive and beautiful groups from Chiswick were contributed, including fine *Mignonette*, Regal *Pelargoniums*, *Heliotropes*, excellent Gloxinias, Tuberous Begonias, Oleanders of several colours, and Lantanas and Fuchsias, with abundance of Ferns and edgings of *Isolepis gracilis*, *Selaginella Kraussiana aurea*, and *Panicum variegatum*. Messrs. Barr & Sugden, Coveut Garden, had a very bright and tasteful group of *Pyrethrums*, *Pæonies*, *Irises*, *Poppies*, *Ixias*, *Lilies*, and miscellaneous hardy plants, with Ferns, Palms, and *Isolepis*. The *Irises* and *Pæonies* were particularly fine and varied, the bright blue tints of the former and

the rose and crimson hues of the latter being especially fine. Messrs. Hooper & Co., Covent Garden, had a large collection of handsome Pæony blooms—rose, crimson, and white—arranged with Ferns and Palms. Mr. B. S. Williams, Upper Holloway, contributed a large group of fine-foliaged plants, comprising large and healthy Palms, Ferns, Crotons, Dracænas, Ericas, Dracophyllums, Nepenthes, Boronias, and Clerodendrons.

In the east arcade Mr. C. Noble of Bagshot had some large and well-flowered specimens of Rhododendrons. A bright rose variety named Charles Noble was especially noteworthy, the heads being large and very numerous. Messrs. Mortlock & Co. of Oxford Street contributed three tables, one being very tastefully decorated with Irises, Water Lilies, Grasses, and Selaginella; the other two being occupied with ornamental Grasses. Messrs. Phillips & Pearce, 155, Bond Street, had a charmingly arranged table, several stands being filled with Callas, white Lilies, Brizas, Roses, Irises, Spiræas, Ferns, and Gladiolus Colvillei albus. Mr. W. Brown, Richmond, contributed a table very tastefully arranged, the central stands containing Rhodanthes, Centaurea, Begonias, Oncidiums, Ixoras, Rivinas, Dipladenias, and Allamandas.

Messrs. T. Rivers & Son, Sawbridgeworth, Herts, had a group of fruit trees in pots, comprising Early Rivers and Early Red Guigne Cherries, with Lord Napier Nectarines, remarkably well fruited. Dishes of fruit were also staged of Pine Apple, Lord Napier, Stanwick Elruge, and Dryden Nectarines, Conkling Peaches, Bigarreau de Schreken, Frogmore Bigarreau, and Guigne d'Annonay Cherries, all of remarkable fine size and quality. Messrs. Smith & Larke, Kensington, staged some fine bouquets and baskets of flowers.

These groups remained for the Evening Fête, the following medals being awarded. A silver-gilt Knightian to Messrs. T. Rivers & Son, silver Flora medals to Messrs. J. Veitch & Sons, C. Noble, Barr and Sugden, Phillips & Pearce, and W. Wood. Silver Banksian medals to Messrs. W. Brown, W. Wood, Meman & Cornish, and Hooper and Co., with bronze Banksian medals to Messrs. J. Aldous, and Mortlock and Co.

First-class certificates were awarded for the following plants:—

Odontoglossum vexillarium Cobbianum.—This was shown by W. Cobb, Esq., of Silverdale Lodge, Sydenham, and is chiefly remarkable for having a pure white lip, the sepals and petals being pale purple. A single line of rich crimson extends a short distance down the centre of the lip, and seems to show the purity of the white to greater advantage.

Gloxinia Robin Hood (Veitch).—An excellent variety, with very neatly formed flowers, circular in outline, and of moderate size. Colour deep rich scarlet, shaded at the margin of the lobes to pink. One of the erect-flowering type.

Gloxinia Garibaldi (Veitch).—A most brilliant variety, with flowers of moderate size, very freely produced, rich scarlet, with a light throat faintly dotted with red. The habit is good, compact, and vigorous.

Adiantum Legrandi (Veitch).—A distinct variety, apparently of the cuneatum or gracillimum type; the fronds very dense, almost bunched, the pinnules diminutive and bright green.

Aerides formosum (Veitch).—A hybrid, supposed to be from A. Larpentæ and A. odoratum; the flowers in long rather loose spikes, white, tipped with purple, the lip being blotched and streaked with the same colour.

Nepenthes Mastersiana (Veitch).—Noteworthy for the deep red colour of the pitchers, of neat form. It is said to be a hybrid between N. sanguinea and N. phyllamphora. The pitchers are about 6 inches in length, the lid being sharply turned over the aperture.

Rhododendron balsamæflorum (Veitch).—One of the greenhouse hybrid section, with salmon-red double flowers of neat form. It is perfectly double, with eighteen or twenty petals in some cases—a most remarkable freak in these useful plants.

Masdevallia Harryana striata (Sir Trevor Lawrence).—Flowers large, striped irregularly with deep maroon on a rosy crimson ground. This is a very distinct variety, but the wrinkled appearance of the flowers has a peculiar effect.

Zygopetalum expansum (Sir Trevor Lawrence).—As mentioned above this is somewhat suggestive of Z. Gautieri. The leaves are long, narrow, and arching; the flowers being borne on a tall spike. The lip is oval or slightly lobed, very deep violet purple; the sepals and petals green barred with brown.

Pelargonium Gratitude (G. Smith, Edmonton).—A Show variety with large flowers of excellent form, circular, and even; the upper petals rich crimson, nearly maroon, and the lower of a light purple shade with a white centre.

Lobelia pumila Ingrami (Wood & Ingram, Huntingdon).—A compact-growing variety bearing pure white flowers that are produced very freely. It appears to be admirably adapted for bedding purposes.

Pelargonium Gold Mine (J. & J. Hayes).—One of the decorative section, having fine trusses of scarlet flowers; the petals being faintly margined with white, the upper petals being darkly veined in the centre.

Viola Champion (Heath & Son).—Flowers very pale yellow, a cream

colour nearly white, having a few violet lines radiating from the bright yellow eye. Very floriferous.

Lilium elegans robustum (Ware).—An effective Lily, bearing large open flowers in a compact head, bright yellow spotted with red. This is a really valuable and handsome hardy plant for flowering at this time of year.

SCIENTIFIC COMMITTEE.—Rev. M. J. Berkeley in the chair.

Hollyhock Fungus.—The Chairman showed stems of the Hollyhock unusually badly affected with this pest, as also with another parasitic fungus, *Fusisporium*. Mr. Berkeley suggested that the spores might have been introduced with the seed.

Red-stained Timber.—The Chairman showed portions of the old timber taken from a mud-walled house in Northamptonshire stained of a bright crimson by a fungus, probably *Sphaeria rhodobafolia*.

Hybrid Dipladenia.—A correspondent from Newport, Monmouth, sent flowers of a very lovely Dipladenia of a pale rose pink colour, concerning which the Committee was anxious to receive further information.

Disease in Cabbage Leaf.—From a Dublin correspondent were sent specimens of a Cabbage, on the under surface of the leaves of which on the nerves were numerous small pimples of cellular tissue, ultimately cracking down the centre, the edges of the fissure being everted and dry. Dr. Masters described the anatomical structure, and attributed the disease to the probable action of mite, though he had not discovered any such insect, nor any trace of fungus.

Disease in Abies amabilis, &c.—Dr. Masters showed specimens of the gouty knobs which so often deform the branches of A. nobilis and other Conifers, and described their anatomical construction. No new tissues were formed, but the cells and wood fibres were much enlarged, dissociated, and relatively destitute of thickening characteristics similar to those described by Prillieux in the case of the American blight in the Apple. The disease in question is indeed produced by a similar insect, and is generally considered incurable; nevertheless Mr. Barron of Elvaston Nurseries, Borrowash, had succeeded in overcoming the disease by the use of fir-tree oil, which killed the insect and allowed of the growth of new wood.

Thuja Lobbi and T. gigantea.—Hon. and Rev. J. T. Boscawen brought fruiting specimens to show that T. Lobbi of gardens was distinct from T. gigantea.

Iris Fungus.—Mr. Lynch of the Cambridge Botanic Garden sent specimens of Irids affected with this fungus, with notes thereon by Mr. Berkeley. The specimens were referred to Mr. W. G. Smith for further examination and report.

Plants Exhibited.—Dr. Masters showed specimens of the bark of the White Pine of China (P. Bungeana) from Mr. Kinghorn's nursery at Richmond, and showing the bark peeling off in flakes like that of the Birch or Plane, which is one of the characteristics of that species. From Mr. Barron's Elvaston Nurseries, Borrowash, came specimens of Pinus contorta; Picea ajanensis; Pinus tabuliformis, referred by Dr. Masters probably to P. Massoniana of Lambert; Larix leptolepis, the Japanese Larch; and Acer Nikoense, a Japanese Maple, with palmate leaves and long slender racemes. From Herr Kirckhoff of the Royal Gardens, Donaueschingen, came a fine plant of Tillandsia Furstenbergii, an acaulescent species, with tufted glaucous leaves dilated at the base, linear lorate channelled on the upper surface, and finely toothed on the edges. The flower spike is erect, thickly beset with beautiful rosy lanceolate bracts, which are covered with a whitish meal.

THE EVENING FETE.

Weather of a most unfavourable character prevailed throughout the evening of Tuesday last, and the Royal Horticultural Society's Fête has scarcely been held under more unpropitious circumstances. Continuous rain, and a temperature much below what is seasonable in June, rendered the gardens quite unsuited for promenade, the visitors being necessarily confined to the arcades and conservatory. The latter building was lighted by the Gilcher Electric Light and Power Company, and presented a brilliant spectacle, particularly during the time the united bands of the Royal Horse Guards and Second Life Guards were playing. The east and west arcades contained the numerous groups of plants described in the above report, and were brightly illuminated by Messrs. Siemens Bros.' electric lamps. For the cascade and flower beds in the gardens the last-named lamps were also employed, other portions of the gardens being lighted by the Anglo-American Brush Electric Light Corporation. Festoons of coloured oil lamps were as usual suspended from the trees, but the dull weather considerably lessened their effect, as it did also that of the coloured fires. All the arrangements were as satisfactory as could be expected under the circumstances, and the attendance was good.

SUTTONS' LATE QUEEN BROCCOLI.—Broccoli has been particularly good this season, and the Late Queen exceptionally so. It is of good dwarf habit, which renders it hardy; the heads are large, of great substance, and nearly as white and equal in quality to the Autumn Giant Cauliflowers. We have been cutting Cauliflowers for nearly

three weeks, but for my own use I prefer the above Broccoli, of which at this date (June 12th) we still have a few.—W. IGGULDEN.

A WEEK IN BELGIUM.—GHENT.

[THE SIXTH DAY—Continued.]

A FIRST visit to a place is naturally invested with more than ordinary interest, and the various features appear to be impressed on the mind with more than usual force. With several of the renowned Ghent nurseries I became familiar years ago, but not until last autumn had I the privilege of inspecting the great establishment—greater than I expected to find it—near the Porte d'Anvers, and of spending

TWO HOURS AT VAN GEERT'S.

In one respect this manufactory and emporium of plants stands alone, inasmuch as there does not appear to be any other particularly notable nurseries near it, as is the case on the other side of the city, where at least half a dozen may be seen from one standpoint. But if isolated and some two miles from the railway station, or the Place d'Armes, time is well spent in visiting Van Geert's. A drive through the principal streets, with quaint old buildings all around and the queerest of names indicative of the ownership and calling of the several occupants, is alone interesting. Englishmen soon find they are appealed to in a very characteristic manner, and if they "keep their eyes on" the taverns, or estaminets, they will be surprised and perhaps a little amused to find in how many ways a favourite dish may be rendered—not cooked, but spelt—without giving it correctly. We find biftik, befsteek, biftsteyk, and beefstik (and bier), with some other modes; but seldom, if ever, do we see a pure example of old English orthography on a Flemish tablet meant to express that the substantial fare of beefsteak can be had within. "Bier" is nearer the mark; indeed, it is not impossible that teetotallers exist who may conclude that not an inappropriate name for a beverage which is loved and hated with such great intensity, according to taste. We find good English, however, when we arrive at Van Geert's, and especially if the pleasant proprietor of the nursery is at home.

Like other of the Belgian nurseries there is no outward display here. Business, not show—work, not spectacular effect, is the first impress that is stamped on the mind of the visitor. The Ghent nurseries are emphatically industrial establishments—plain workshops of a great trade, the connections of which extend all over the civilised and some of the uncivilised world. A square, substantial, commodious house, a portion of it the business bureau, with its plain furniture, parallel ranges of large and lofty curvilinear structures shaded with bamboo blinds, and the glass ends coloured with a blue pigment; long rows of standard Bays—hundreds of specimens, stately and symmetrical; beds of Azaleas and other plants planted out, sheltering hedges of Limes and evergreens, and borders of trim Conifers; men rushing to and fro in blouses, sabots, and black jean caps. These are the ordinary workmen, the diggers and delvers and water carriers; foremen and young gardeners a little more spruce but not less busy. Imagine something like this, and you have a general idea of M. Auguste Van Geert's nursery.

Let us glance inside the structures. They are numerous and full of plants, some large and rare, others new and limited in numbers, others again of proved merit and in brisk demand represented in thousands. We enter a mixed house of Palms, Cycads, Ferns, and Aspidistras. The specimens are mostly in pairs, with here and there groups of fresh arrivals, such as a fine importation of *Areca lutescens* from Brazil; fine pairs of *Areca sapida* of great size; *Livingstonia Hoogendorphi*, 8 feet across, with grand leaves; *Cocos Mikianiana*, 8 to 9 feet, with leaves 18 inches wide and bifurcated, striking and rare; *Kentia Wendlandi* of the same size, leaflets 18 inches long and 2 to 3 wide, tapering to both ends—unique; *Encephalartos Hildebrandti*, very large; specimen Tree Ferns of great size, such as *Cyathea Dregei*, *C. dealbata* in fine colour, and *C. Gardneri* with trunks of 4 to 5 feet, and very rarely seen. Those are submitted as a sample of the stock in this and other similar houses, dwarfier plants of various kinds occupying all the interstices, so that no space is lost.

We pass to a lower house—a long pit-like structure filled with *Gloxinias* in all the leading continental and English varieties; new double *Bouvardias* in course of rapid increase, and a large batch of *Cyperus latus variegatus*. Next comes an Orchid house containing clean portable plants of *Cœlogynes*, *Dendrobiums*, *Odontoglossums*, and *Masdevallias*, with *Anæctochilus Lowii* in splendid condition. There are, however, no such collections of Orchids in Belgium as in England, but their numbers are increasing to meet the growing Parisian demand. More striking is the Aroid house, which is crowded with a complete assortment of plants including *Philodendrons* and *Anthuriums*, large and small; *A. Thibautianum* being grand, with *A. Veitchii*, *A. Warroqueanum*, and *A. Andreanum* in considerable numbers and admirable condition. A similar house is chiefly devoted to *Caladiums*—thousands of them in eighty varieties, the most striking being a new form from Portugal, *C. Manoël*, all the centre being white with a clean dark green margin. Next is a colony of *Nepenthes*, including *N. bicalcarata*; a group of the pretty *Peperomia prostrata*, a fine lot of *Stevensonias*, and a number of plants of the striking Fern *Aspidium Germynii*. We pass without entering a long house of

young Palms, principally *Areca lutescens*, with Ferns in variety. Another structure is occupied with *Areca Verschaffelti*, conspicuous and attractive by its white midrib; elegant *Cocoses*, and *Dæmonorops palembanicus*.

Another house is occupied with *Dracænas*, which are grown and sold by the thousand. *D. terminalis* was in splendid colour, and an order for a thousand was being executed. A long pit was filled with fine-foliaged *Begonias*, which are coming into fashion again, and no wonder, for some of the newer varieties of rex and discolor are very beautiful. One of the finest, for which there is a great English demand, is *Louise Chrétien*, the dark velvety foliage with silvery markings being very rich. *Dieffenbachias* occupy much space, all the forms being represented; a new one from Italy, *D. Memoria Corsi*, with white and green blotches, being very distinct. *Marantas* are largely grown in all the leading varieties.

A large house is quite filled with *Crotons*, which are kept as cool as possible that they may travel the better, Baron James Rothschild and Truffautiana perhaps especially noteworthy. We come to another hundred-yards-long house of small Palms. There are thousands of them—*Latantias*, *Arecas*, *Kentias*, *Phœnixes*; and yet another of smaller Cycads and Palms. Then a range crowded with Ferns old and new, another in fine contrast filled with *Bromeliads*, *Tillandsia splendens* being in great force.

In the propagating house were the new plants in process of increase, all the best specialities from English and continental nurseries being obtained, and stocks raised as rapidly as possible.

Apart from the glass department a considerable space of ground is devoted to ornamental trees and shrubs; but by far the most striking effect here is produced by long rows of beautiful standard Bays in tubs, with straight stems and symmetrical heads arranged on each side of the walks. There must have been half a mile of these Bay avenues. Such specimens are in demand for the decoration of terraces, squares, and in the quadrangles of hotels on the continent, a few, but only a few, being employed in England; yet there are undoubtedly positions, especially in towns, for which they are well adapted, as they occupy little space, and afford relief to masses of masonry where trees cannot be planted. The pairs are exactly matched both in respect of the height of the stems and the size of the heads, the former ranging from 6 to 8 feet from the ground to the foliage, the latter being from 2 to 4 and more feet in diameter. They are kept in faultless form and in excellent health.

In the nursery were several beds about 4 feet wide, filled with prepared soil and planted with *Azaleas*. This is a practice adopted in nearly all Belgian nurseries, and is the secret of the fresh, vigorous, small, floriferous plants that are sold so cheaply in our English flower markets. That many of the plants die after flowering or eke out a lingering existence is pretty well known; but this is good for trade, and they are, even for one display, at least as well worth the money they cost as *Hyacinths* are. These *Azaleas* succumb, however, mostly because thousands who purchase them when in flower neither possess the means nor the skill for properly managing them afterwards; but that they can be kept healthy, increased in size, and utilised in future years many examples prove, among which some may be seen at Chiswick.

Other beds in the open air were occupied with *Casuarina ericoides*, a most elegant plant in a small state, especially when grown in the manner indicated. The charming greenhouse plant, *Choisia ternata*, is prepared in the same way; and better, because more healthy and bushy, examples can be produced in this manner than by growing them in pots. The plants named are grown in thousands. They are planted out in early summer and potted in the autumn; but perhaps most of them are simply "mossed" and sent to nurserymen and florists in this and other countries, the greater number of the plants being sold as they stand in the beds.

In cold pits in the grounds many hundreds of plants of *Pandanus Veitchii* were planted, also *Aralia Sicboldi* and *Cordylines*. In one pit with roughly boarded sides and lights placed across were three thousand plants of *Cocos Weddelliana*, and similar pits were devoted to other popular Palms.

Snug enclosures, some 12 feet wide and of varying lengths, were formed with Lime hedges 12 or more feet high, and in these *Camellias*, *Cannas*, *Arums*, and greenhouse plants generally were sheltered from high winds and bright sun, yet had the air and light necessary for maintaining them in health.

Prominent in the nursery, which is as level as a river, is a large mound planted with forest trees, which have attained their full size. This is of considerable extent, and during the summer is made picturesque with Tree Ferns, Palms, Cycads, &c. A moat surrounds this miniature mountain on three sides, and one wonders for a moment why such a work should have been undertaken, but it was a work of utility. The "moat" was formed to provide an abundant supply of water, and the material excavated formed the mound. Certainly a more practical mode of disposing of the material than the sapient method once ordered by a village vestry, at least so it is said, when the question of disposing of a quantity of soil was considered, and it was decided to dig a hole and bury it.

The time sped pleasantly in this old nursery with its young and accomplished proprietor—a man of energy and enterprise, who is extending his business yearly, and enjoys the esteem of his brother horticulteurs. He is the author of the "Iconography of Indian Azaleas," of which an English issue is published monthly, and will make a

beautiful work. He is also the President of the Syndicate of Horticulturists of Belgium, and is ever ready to promote the interests of the craft of which he is such an able and active representative. To him and to Madame Van Geert my acknowledgments are due for their courtesy and hospitality during my first visit to this large, well-furnished, and admirably managed establishment.—J. WRIGHT.

TROPÆOLUM LOBBIANUM TOWNSONII.

THIS is the finest variety of its species grown. The flowers are of the most brilliant scarlet, with a dark throat shaded purple, and very compact in form; the leaves small and a dark glaucous green. As a winter-flowering plant it has no equal, covering the roof of conservatory or greenhouse with a mass of glowing scarlet. Thousands of flowers can be cut daily from a single plant now in a 9-inch pot, which has supplied me with flowers of this invaluable colour all winter. If planted in the open ground it ought to have a light, sandy, rather poor soil, and fully exposed to the sun. It makes a very showy bed pegged down. I had a large raised oval last summer, which was the admiration of everyone; scarcely a leaf was visible. For market purposes, bouquet-making, and table decoration I do not know a scarlet flower to equal it. It was raised by Mrs. Townson of The Cottage, Bowdon, whose pretty residence in summer is almost covered with it.—T. D., *Salé, Cheshire*.

[The flowers sent are $1\frac{3}{4}$ inch in diameter, and almost circular in form, with stout smooth petals, slightly recurved, and extremely rich in colour. Beyond doubt the variety is an excellent one. It resembles a form that has been exhibited under the name Brilliant, but without flowers for comparison we are not prepared to say the two varieties are identical.]

COMBINED FRAME AND WALL-PROTECTOR.

ONE of what may be termed useful novelties that were exhibited at the Summer Show of the Royal Horticultural Society

was this protective appliance of Messrs. Foster and Pearson, in whose silver-medal collection it was included. Both the top and upright lights are readily moveable, the latter being made to fit the frame in front when not required over the trees. The frame can be utilised for protecting Cauliflower and Lettuce plants through the winter; also such flowers as Calceolarias, Pansies,



Fig. 97.—Wall-protector.

Pentstemons, and various others, from which the lights may be safely removed when the blossoms of the fruit trees expand. Then after the fruit is set and safely swelling, the lights can be used on the frame in which Melons, Cucumbers, Tomatoes, or various decorative plants can be grown during the summer months. Ventilation is provided at the top and bottom of the protector, and is simple and efficient.

SILKWORMS AND SILKWORM REARING.—10.

(Continued from page 409.)

BRITISH experimenters in silkworm-rearing at this time of day have some special advantages; amongst these is the present demand for eggs produced in a temperate climate such as is ours. Eggs have been brought from lands far distant to supply healthy races, where on the Continent the silk industry is largely pursued; and

if good British eggs could be produced in sufficient quantity they would no doubt find purchasers. If the breeder is tolerably successful it is reckoned that one ounce of eggs will yield nearly a hundred ounces—a considerable return upon the capital expended, though the cost of food and attendance must be considered. By a rough calculation about 40,000 worms are hatched from that weight of eggs; and if all these lived and spun, then there would result upwards of 120 lbs. of cocoons; but in practice half that quantity is seldom obtained. And as is evident silkworms that, from some cause or another produce poor silk, may yet, when they become moths, yield eggs to the average number, still in ordinary seasons very fair cocoons have often been spun here. In favourable years, and with the exercise of the skill to be acquired by experience, we may expect to have British cocoons equal to those of any country; but should eggs continue to realise a good price, the returns from these will be more certain than from the preservation of cocoons, which must be sacrificed if the moths are to breed.

A description has been already given of the principal appliances that are requisite for silkworm-rearing; to this it may now be added that Mr. Dickins has tried with some success the plan of placing the food in flat frames of wire, double, the size of the meshes varying so as to suit the dimensions of the worms at different ages. These frames are suspended by cords above the trays in which the worms are placed; and by this plan all the refuse drops from the leaves on which the worms are feeding into the trays beneath, and as air circulates freely amongst the leaves they retain their freshness better. The silkworms being able to pass without any difficulty out of the frames when the food requires renewal, other frames with new leaves are placed beside those that are nearly exhausted for the worms to transfer themselves. But I question whether such contrivances are generally applicable, and they seem better suited for the worms of medium size than for the very small or large.

In Europe it has long been customary, as already stated, to supply silkworms that have attained to the "ascending season" with some bundles of the stalks of Heather or Broom, or even the tops of species of Cabbage, which are placed round the edges of the trays. These, let it be observed, should not be set too closely, and it is needful to watch them carefully lest any worms fall from them by accident, or, in their restlessness, use them only as a means of wandering off to unsuitable spots for spinning. The Japanese have been trying a method rather different. They form loose packets of rice-straw or some similar substance, and distribute these over the whole surface of the trays, spreading leaves thinly under them. A considerable objection to these is, that as all the worms in any tray may not chance to spin just at the same period, they must be shifted about to cover the trays with some fresh leaves. Hence an improvement has been made on this—viz., arching flexible rods over the trays, upon which the rice-straw is laid for the worms to enter. In some of the Japanese magnaneries it is the custom to move the worms to and fro with chopsticks, often in a rough manner, a practice more unsuitable than shifting them with the fingers. That, however, should only be done when the worms are of some size. The young worms are occasionally moved by camel's-hair brushes, but in feeding them by the thousand they must of necessity be allowed to transfer themselves from leaf to leaf.

Reference has been made in these pages to the harm that may easily be done to the eggs of poultry by injudicious exposure to a chill. The eggs of silkworms may, in like manner, be injured by cold applied to them in order to prevent their hatching out too soon, or perhaps during transit from their native climate to a different one, under the mistaken idea of keeping them fresh.

But the cases are not exactly parallel, since a moderate amount of cold, with all eggs of moths that remain unhatched during the winter, is found conducive to a change in them which is positively salutary, yet mischief is caused by sudden variations, and by chilling them in spring when their temperature should be gradually rising. Whether eggs are English or foreign, some advise to wash them on a sunny day in April with a little wine and water—hardly necessary perhaps, though there is no danger of infecting the unhatched juveniles with wine-bibbing propensities. Having washed the eggs they dry them and keep them in a room airy and dry, the temperature not above 55°. That at least it is judicious to do, and then so arrange that as the season advances the warmth shall increase in their apartment, but it ought not to rise above 70°. About the end of May in most years the worms begin to appear.

In preparation for emergence the eggs, having been distributed upon trays and sufficient space given them to prevent

the worms annoying each other on first hatching, are usually covered with cap-net, as it is called, and divided leaves scattered over. These must be renewed until the worms show themselves, but as the time approaches I think it is preferable to place above the eggs, not cut leaves, but short twigs of the Mulberry with young leaves upon them. These are readily lifted off as the newly-hatched worms cluster upon them, and they can be placed in the trays of wood, cane, or wicker, where they are to be fed. Possibly at first the silkworms may not seem eager to eat; on emergence the organs are tender, and they begin to gain strength ere they eat by taking in a supply of air. As the worms hatch out in clusters or batches these may be grouped together during the feeding, since they will generally go through their changes of skin at about the same time. During the commencement the worms will not, of course, be distributed over the whole number of trays that are arranged in the room. If, however, stands are used to hold the trays, each stand should contain worms of one age; thus for example—a stand that supports eight trays might have but two of these occupied by the worms when first hatched, and eventually they will have to be distributed over the remaining six. The four moults or changes of skin mark five periods in silkworm life, these occurring about the sixth, eleventh, seventeenth, and twenty-second day; the last of these being passed through successfully, ten days' more feeding brings the worms up to the spinning stage. Their voracity at the fifth period requires large and frequent supplies of food, for they will devour thrice as much during the last week as they have consumed in the whole of their previous feeding.

The time of inaction at each moult varies from twenty-four to forty-eight hours, when the worms ought not to be disturbed if it can be avoided. It is easy to perceive the approach of one of these illnesses—for such they are, since they assume a fixed position, and the head appears to be loose. Occasionally they raise the front segments. After the moult the head looks larger, and the skin is wrinkled; a short rest is requisite before feeding recommences, but the cast-off skin is not devoured, as it is by some caterpillars.

The dry stalks and excretions, it should be further noted, form a bed, so called, upon which the silkworms can remain without harm until it becomes thick, when it is removed, as explained previously, by distributing fresh leaves above nets or papers placed over the worms. In the later stages a more frequent cleansing of the trays is desirable, and the prompt removal of any worms that are enfeebled or diseased. It is not then necessary to cut up the leaves, as is advised while the worms are young, to present them with appetising edges. Different rearers have their different plans with regard to supplying leaves not less than three times a day, not more than six, varying with the age. Care should be taken to scatter them well round the sides of the trays, or else the worms crowd into the middle.—J. R. S. C.

PRUNING GOOSEBERRIES IN SUMMER.

GARDENERS are slow to learn that the pruning of fruit trees should all, or very nearly so, be done in summer. The displacing of unnecessary shoots in Peach trees, stopping Vine shoots, and the removal of laterals to prevent crowding is recognised as necessary, but so far as small fruits (often the most valuable in many gardens) the plan is exactly the reverse. In the case of Gooseberries the shoots are cut back and thinned out in winter. The reason for this pruning is to secure the disposal of the shoots in order to admit room for growth; but cutting back vigorous growth in winter secures the opposite, for the cutting causes a larger number of shoots than those removed, the consequences being a perfect thicket where neither sun nor air can penetrate, nor shoots develop properly to carry future crops.

The present is the right time to prune such plants, and when this appears in print ours will be finished if time can be possibly spared. The shoots are now from 4 to 7 inches long, and it is easy seeing now what shoots will be wanted to fill vacant spaces, replacing old shoots, or for extending the hushes. All others should be removed. The mode practised here is, first to determine what shoots are to be left, and then with the finger and thumb snap off with a half bend, half pull, all that are not wanted. This leaves space for those that remain performing their functions properly. There is no comparison between the produce of bushes thus treated and the produce of bushes so crowded as to be half asphyxiated. Moreover, the bushes benefit, and the shoots, terminal or otherwise, grow so much stouter and longer that the young hushes considerably extend yearly. In these days, when everything must pay its way, this is important, for only two years are required to do the work of three. Some people, no doubt, are afraid of growing such plants rapidly because it exhausts, and

the wood never ripens properly, and nobody knows what more; so they pinch terminal and other permanent shoots, which in consequence make a second growth which really exhausts, for it takes out of the bushes, but does no work in return. The right thing is to repress what anyone can see will never be needed, and to encourage that which will.

While speaking about Gooseberries it may be well to say that sometimes the fruit may be very severely thinned without thereby making the crop less. Last year ours set so freely that when the berries were half grown they were crowded where they grew. More than half the crop was removed and properly disposed of, but the remaining fruits were even then more than could be brought to perfection. It is well, then, to thin the fruits, and severely too, when necessary.

Some people keep their Gooseberries very low. This is a mistake, and especially in small gardens. There is no restriction to upward growth, though there may be so laterally, and advantage should be taken of the fact to lead the branches up as far as possible. Gathering the fruit or pruning the bushes is a back-breaking job when the bushes are not over 30 inches high. As a matter of fact it is hardly possible to induce some bushes to grow tall; in this respect there is a fine field for raisers who care to work it. Give us upright strong-growing Warringtons who wish to do something towards the improvement of the Gooseberry.

Should caterpillars appear make hellebore tea by boiling hellebore powder in a clothes copper, or other such boiler, and damp the hushes with that, and the departure of the unwelcome guests will be secured.—SINGLE-HANDED.

SALVIAS IN POTS.

As free-flowering remarkably showy plants for greenhouse and conservatory decoration Salvias may justly be regarded as some of the most useful and pleasing we possess; they are further of quick growth, sure of flowering, and of easy culture. Most people are familiar with some kinds which bloom in the open air during the summer and autumn months, but it is for culture in pots that they are most valuable, and when grown in this way some of them may be had in bloom at any season. *S. splendens* deserves to be specially noted, as it is hardly ever out of bloom, and its long spikes of bright scarlet flowers are never more showy than during the dullest months of the year, and it is to secure a good stock of plants to bloom when that time comes again that these notes are written now.

Propagation is the first object. Those not in possession of any plants now need not buy many, a few of each kind will be sufficient to afford a large number of cuttings in a very short time. They are all softwooded and of quick growth. When inserted in sandy soil the cuttings will root in a week or so with the assistance of a little bottom heat, and when this cannot be supplied it will only take a few days longer to root them under a hand-light or in a frame. Numbers may be rooted together in one pot, or they may be placed singly in the smallest-sized thumbs. In the latter case they may remain in these until the ball of soil is well filled with roots, when they may be transferred to a larger size. Where they have been rooted together they should be separated and potted singly into small pots. At first the compost should be rather sandy, but when they gain strength and have plenty of roots a mixture of loam, good manure, and a sprinkling of sand is the best compost to use.

A cool frame or greenhouse are best for them all summer. Great heat is not needed; on the contrary, this would soon spoil them, as they are always inclined to draw up weakly. If left in the cutting pots the main growth would reach about 1 foot in length, and then terminate in bloom; and as this is always their disposition, stopping the growths must be continued until a little while before the flowers are wanted. At the present time we have several dozen plants of *Salvia splendens*, each bearing numerous spikes of the brightest scarlet flowers about 12 inches in length. Some time ago we thought to grow these on for winter decoration, but they exhibited such a disposition to flower that we allowed them to do so; but they will soon be cut back, and fresh growth will quickly follow that will bloom again in the course of two months if allowed, or they may be closely pinched until well into autumn, and all their energies reserved for a grand display in December and January.

The bloom is at the command of the cultivator any time, but propagating plants at once and growing them for winter decoration may be found the most profitable way, as they bloom in the shortest days so freely; keeping them near the glass, giving plenty of water when in active growth, and liquid manure two or three times weekly when the pots are full of roots and during the time they are in bloom. In October they may be taken from the frames

and placed in the greenhouse, and an intermediate pit will suit them in long periods of cold or wet weather in the winter time.

Salvia patens has bright blue flowers, and is often seen in the open borders, but it is also excellent for pot culture; and although it may not come in during winter, it may be had in bloom early in spring and late in autumn. Some tubers which were potted in January have lately been flowering well, but the flower spikes are now all cut and leaf growths are springing up anew. These will be allowed to develop in a cold frame, and another batch of flowers will be the result in October.

Much more could be said in favour of *Salvias*, but if what I have written will only induce some growers to take a few of them in hand I shall be satisfied. Beginners, or indeed all *Salvia* growers, will find *S. splendens* with its numerous spikes of intense scarlet flowers, and *S. involucrata* with its tall pink stems, of the greatest merit, and two or three dozen good plants of each will be of more service during the winter than any other kind of softwooded plants.—M. M.



KITCHEN GARDEN.

CUTTING Asparagus should not be prolonged longer than is absolutely necessary, as it is very important that the plants have sufficient time to develop a good growth, in order that the buds for another season's supply may be matured. In exposed situations it is advisable to secure the stems from being broken by means of stakes, or by placing these at distances apart and running string from one to the other, to which they can be secured. Copious supplies of liquid manure or sewage may be given with advantage up to September.

In the production of high-class vegetables plentiful supplies of water are necessary in dry weather, even in well-enriched soils, and to render the watering more effective the surface of the ground about such crops as Peas, Beans, Scarlet Runners, Dwarf Kidney Beans, Cauliflowers, and Globe Artichokes should be mulched with partially decayed manure, which will prolong the supply considerably. Where the soil is light and shallow the above is not only needed, but abundance of liquid manure is essential to a full and successional supply of vegetables during the hot summer months.

Attend to advancing crops of Peas, staking in good time, and when the plants in later rows are too thickly placed thin them to about 2 inches apart. Plentifully supply water to the roots of Celery in all stages of growth; earth up that which was planted out early; plant out for succession; and prick out from outside seed beds for late supplies. Prepare trenches for these, and the space between them can be occupied with Lettuces or Endive, or a row of Spinach may be grown. Maintain the successional supplies of those, also Turnips and Radishes, by occasional sowings as required, and to insure fine quality water must be given abundantly when necessary. Take advantage as ground becomes vacant and the weather is favourable to plant out successional crops of Cauliflowers, Savoys, Cabbage, Broccoli, and Winter Greens. Where the ground is rich Brassicas that have to stand the winter are best planted in firm ground, so that a sturdier growth may be made and the plants be better able to withstand severe weather. Rosette Coleworts should be grown where a supply of Cabbages for soups or other purposes is required through the winter months. The seed should be sown now, pricking out the plants as soon as they are sufficiently advanced to secure sturdiness in habit, afterwards transplanting them 15 inches apart every way.

Attend with regularity to the requirements of Ridge Cucumbers and Vegetable Marrows which are planted out in handlights, and as soon as they begin to run elevate the handlight to allow them to pass out, pegging the shoots equidistant over the surface of the ground. Complete at the earliest opportunity the potting of Capsicums and Egg Plants, placing them in pits or frames. Attend to the requirements of Tomatoes trained to walls, keeping the plants confined to one stem by removing the laterals.

FRUIT HOUSES.

Vines.—Thinning late Grapes should be concluded as soon as pos-

sible, and every encouragement may be given to the Vines to swell their crops by plentiful supplies of water at the roots, and the maintenance of a genial atmosphere by damping available surfaces in the house whenever they become dry, closing early with a good sun heat, a moist atmosphere being generated by damping available surfaces. When watering a little guano sprinkled on the border previously will prove of great service. Outside borders must not be neglected, but have a thorough watering when the weather is dry. A mulching of manure after a good watering will help to keep the surface moist and encourage roots there, as well as prevent the necessity for a repetition of it for some time. The Vine is a gross feeder when growing, and if the surface soil is allowed to become dry the roots strike deep into the border in quest of moisture, which in a cold wet season causes shanking as well as sappy growths that do not ripen well; hence crops of fruit are produced loose in bunch, uneven in berry, and defective in colour and finish. The cold weather still necessitates the use of fires to maintain a night temperature of 65°, and 70° to 75° in the daytime, but they should be stopped early on fine mornings, when ventilation will require careful attention. Do not neglect the borders of Vines bearing ripe Grapes or those from which the Grapes have been cut, but if at all dry water so as to keep the foliage in good condition that it may aid the development of the fruiting buds for another season. In houses where the Grapes are ripe keep the Vines free from lateral growths, the atmosphere cool and airy, and as dry as is consistent with the health of the foliage. Vines in pots should have the leading shoots pinched when about 8 feet long, and the laterals and sub-laterals stopped at one joint as produced, which applies more especially to those intended for fruiting next season. Those for planting only are better to have the laterals longer or not be pinched at all, if to be cut back to three or four eyes at planting time. Newly planted Vines which have taken freely to the fresh soil must be encouraged as much as possible by closing early with sun heat and copious syringings on fine afternoons.

Melons.—Further sowings may still be made according to the wants of the establishment. For those with no better appliances than dung-heated pits and frames the last sowing should be made at once, the plants from which in ordinarily favourable weather produce a supply of fruit at the close of September. Where there is light, properly heated, and well-ventilated structures further sowings may be made up to the middle or close of July, and the plants from this sowing will continue the supply of fruit to November. A good bottom heat should still be secured to young plants, and if had from fermenting materials it will lessen the necessity for fire heat, which will only be now necessary on cold nights and in cold sunless weather to maintain the temperature at 70° to 75°. Fertilise all pistillate flowers as they appear on later plants. Shade only at mid-day for an hour or two. Remove laterals freely where the fruits are fast swelling, and support those fruits which are becoming heavy.

PLANT HOUSES.

Stove.—The old *Euphorbia splendens* is one of the most useful plants where button-hole flowers are constantly in request. Its culture is easy, and does not need a large amount of root room, doing well in fibrous loam with a little leaf soil and an admixture of sand, with pieces of crocks and charcoal to keep the soil open. Small plants well grown soon become useful, flowering continuously whilst any growth is being made. It requires plenty of light, and is not subject to attacks of insects.

Gesneras of the *zebrina*, *cinnabarina*, and *exoniensis* types should now be encouraged to make stout sturdy growth, keeping them near the glass, similar remarks applying to all winter-flowering plants, which must not be crowded or be kept in the shade of other plants. They should occupy a place near the glass, and only be shaded to prevent scorching.

Rondeletia speciosa and var. *major* are desirable summer and autumn-flowering plants, blooming freely and lasting a considerable time. They grow well in fibrous loam with about a sixth of sand. Plants started early will now be showing flower, and must not be allowed to want for water. After the flowers fade the trusses should be removed, and the plants will break directly and bloom a second

time. Whilst in flower they may be placed in the conservatory and continue in good condition some weeks. Plants of Allamandas, Ixoras, and Stephanotis intended to be moved to the conservatory when in flower should previously receive no more water for a few days than is necessary to prevent their flagging, and they must not be placed in a draughty position or the plants will be injured. Stephanotis grown in pots may, after flowering, if the plants are not already large enough, be further grown for a time before they are ripened, but if as large as required they may at once be so treated as to harden their growth, which can be done by placing them where they have moderate heat with a dry atmosphere.

THE BEE-KEEPER.

PROLONGING THE LIFE OF THE QUEEN BEE.

THE celebrated physician Hufeland wrote a book on the art of prolonging human life. But if there can be a question of prolonging human life artificially, we might certainly expect to be able to prolong the life of bees, the more so as their term of life is attained under varying conditions and at different times of the season. While they exhaust their strength and die in about six weeks during the busiest time in spring and summer, bees reared late in the summer and in autumn look as strong and young on their first appearance in spring after six months' rest during autumn and winter as if they had only just left their cells. What is applicable to bees in general must equally apply to the principal bee in the hive—the queen, and to her I shall chiefly refer in discussing the question of the duration of life and the possibility of prolonging it.

This question is as interesting as it is of practical importance. The case of so small an insect as a queen bee, which leaves her cell at the end of sixteen days, and might possibly be fertile and capable of propagating the species at the end of three weeks, to live to the age of four to five years or more, and to be able during this time to produce offspring to the number of about 1,500,000, has probably no parallel in the entire range of nature. The question as to the duration of the queen's life and the possibility of prolonging it is of a highly practical importance where the introduction of a new and superior race of bees depends on a valuable queen bee, obtained, perhaps, at considerable expense. When a bee-master has no isolated apiary it is difficult to keep a race pure until a considerable number of colonies have been formed, which send out drones in large numbers. A bee-keeper of no great experience will also find it difficult to determine with certainty whether the young queen of a colony has been impregnated by a drone of her own race, especially when races do not greatly differ in colour.

In rearing queens, bee-masters, therefore, as a matter of precaution, will always fall back upon the brood from the parent hive in the second, and even, perhaps, in the third year, and are anxious of course to preserve the old queen as long as possible.

The question as to whether and how the life of a queen may be prolonged, was suggested to me by a dispute which had arisen between Miss Titz of Lasswitz, a great Silesian bee-keeper, and a bee-master of the name of St.

Miss Titz, on the occasion of the Neissen meeting, showed some friends who paid a visit to her apiary, in addition to a number of curious objects, an Italian queen bee, which she stated to be six years old, adding that she had succeeded in keeping this particularly pure and valuable queen alive so long by keeping her from excessive breeding. Mr. St. was of a different opinion, maintaining that there was no doubt a young queen had been raised unnoticed, as, according to his long experience, the life of an Italian queen never exceeded three years. He further asserted that the eggs became developed in the ovary of the queen and pass involuntarily, it being impossible for any influence to be exerted on the ovary. In my opinion Mr. St. is wrong on both points. Although six years and one month is certainly an unusually great age for a queen bee, it is not by any means impossible and incredible that she might attain that age. Some years ago I myself had a queen which, though more than five years old, was still very active, and I have no doubt would have lived another year if I had not destroyed her. Mr. Hruschka assured me that he had had a queen which lived to the age of seven years. It appears, therefore, quite credible that the queen referred to lived to the age of six years, the more so as she was a fine and vigorous specimen, and was carefully kept from over-exerting herself.

There is no doubt whatever that it is feasible and in the power of the bee-keeper at one time to stimulate the queen to excessive breeding, and at another time to induce her to deposit few eggs or none at all. By keeping the entire colony quiet in spring as long as possible premature breeding is prevented, and the queen does not waste her strength.

When once she has commenced laying eggs she knows perfectly well how to accommodate herself to circumstances and the requirements of the colony as regards the number of eggs to be deposited. According to the quantity and quality of the food she has taken she produces and deposits as many eggs as the colony is capable of attending to. It is certain that the queen is also able to keep a mature egg back in the ovary for some time without injury to herself or to the egg, as she is often obliged to examine a number of cells before she finds one that is empty and suitable, and in which she deposits the eggs, which undoubtedly would have been deposited into the first cell examined by the queen if she had found it empty and otherwise suitable. A much larger number of eggs will therefore in the same time be deposited in an empty comb inserted into the brood nest, because on an empty comb she can pass from cell to cell, there being no need for her to examine any cell nor to pass any over. A comb containing six thousand cells is often found full of eggs at the end of two days, which shows that a vigorous queen is capable of laying as many as three thousand eggs a day. We might be inclined to consider that the queen was over-exerting herself at that rate, and in a certain sense we should be correct; but we must not for a moment suppose that such productiveness would fatigue or inconvenience the queen. She evidently discharges with energy and pleasure her duty to increase the population of her hive as much as possible, and the less hindrance she experiences in doing so the better she will be. The most vigorous queens, therefore, are always to be found in the largest colonies, where of course the number of eggs deposited is largest. Where the queen is obliged to discontinue laying eggs on account of the stock having but a small population fatal consequences seem to result.

In former years before the Italian bees had become acclimatised, which has now been fully accomplished after twenty-nine years' manipulation, I frequently experienced the loss of Italian queens in weak stocks after they had commenced depositing eggs in spring, but were compelled to discontinue on a sudden change in the weather, because the bees were obliged to crowd together again into a thick cluster. The abdomen of the queen in such cases being found very much distended, the conclusion was forced upon me that the impossibility of depositing the eggs formed in the ovary had proved fatal to the queens.

This unpleasant occurrence has never happened in any of my strong colonies, undoubtedly because the queen was always able to deposit eggs regularly, even during cold weather. But the fact that queens in strong colonies are always in first-rate condition at the time of their greatest prolificness does not exclude the possibility, or even probability, of their becoming exhausted sooner, or dying prematurely. Professional physiologists alone will be able to answer the question as to whether a queen bee is only capable of laying a definite number of eggs, or whether eggs are produced indefinitely as long as the vital power of the queen lasts. Practically it might perhaps be decided by ascertaining how long the queen lives in Australia, where she lays eggs continuously, because Nature produces flowers there without interruption throughout the year; and how long she lives in our own country, where the activity of the bees, and consequently the activity of the queen, is dormant for about five months of the year.

No bee-master is likely to think of economising the strength of ordinary queens. Everyone is anxious that the workers should be as industrious and the queen as prolific as possible. But if it is a matter of keeping some especially valuable queens alive as long as possible, and the question arises as to whether it is possible to prolong their life artificially, we are obliged to answer in the affirmative.—DR. DZIERZON, *Carlsmarkt, February 22nd, 1882.*

FEEDING BEES.

If all the districts of England are as unfavourable for bees at present as that of Cheshire, feeding—vigorous feeding—should be considered the most important duty of the apiarian. Hives are very full of bees, and large hives well filled with bees require much food—at least a winebottle full of syrup each every day. Indeed, that is hardly enough to keep a hive containing forty thousand bees in health and prosperity if no field pickings are obtained. The season here has been so unfavourable that drones have been killed as soon as born in hives not vigorously fed. All young bee-keepers should know that hives on the point of swarm-

ing require a great amount of food, and that if the pinch of starvation is felt the bees are much discouraged, lose their balance, and for the time being abandon the idea of swarming.—A. PETTIGREW, *Bowdon*.

ARTIFICIAL SWARMS.

IN the Journal for June 8th Mr. Pettigrew writes of his "simple" practice of taking artificial swarms, and it strikes me that many things are not so simple as described. A fortnight since, having a very full hive and purposing leaving home in a few days, I pursued the method he advises, and after drumming five minutes found I had driven as many bees as would make a good swarm, and I then placed them in the position of the parent hive. In half an hour I saw there was a "screw loose," and in the evening—I did it between six and seven—nearly every bee had taken its departure. Of course the queen had stuck to the combs. I do not intend trying it again, as it unsettles the hive and does the bees much mischief.—CLIFTON.



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (C. B.).—We know of nothing more likely to meet your requirements than Johnston's "Instructions for the Analysis of Soils," a small work published by Messrs. Blackwood.

Insects on Plums (F. J.).—They may be destroyed by syringing them with a mixture of petroleum and soapsuds, half a fluid ounce of the former being added to a gallon of water holding in solution 2 ozs. of soft soap, or 2 ozs. of fir tree oil mixed with a gallon of soft water, or the same quantity of nicotine soap; or again tobacco water and quassia prepared as have been many times stated, will be effectual if effectually applied.

Regal Pelargonium (E. Blyton).—The flowers sent are very beautiful, being rich velvety crimson faintly veined with maroon, and a bright magenta pink centre. They are large with wavy petals of good substance, and the truss is also large. The plant is evidently floriferous, and the variety will be very valuable for decorative purposes.

Foliage on Vines (T. J.).—We scarcely understand your question, as we do not know whether you refer to the number of leaves or their thickness or substance individually. The leaves of one lateral should not overlap and shade those of the others, but every leaf should be directly exposed to the light, and the laterals should be sufficiently thin and be stopped with that object in view. Let all the leaves develop on which the sun can shine and no others. If we have not understood you write to us again. The glass cannot be too clear, providing efficient ventilation.

Golden Feather for Spring (A. B.).—If you gather and sow the seed immediately it is ripe you will have suitable plants for spring bedding, except adverse weather should defer the maturation of the seed, in which case procure a packet and sow during the last week in July or early in August, and transplant the seedlings a foot apart in an open position, but not wet; sturdy plants will then be produced that will pass the winter safely. The seed may be sown in the open ground. Cuttings of silver-variegated Pelargoniums strike in the open air as well as the ordinary scarlet Zouals. Your shrub is *Euonymus japonicus*.

Potting Solanums (R. C.).—When the growths are half an inch long shake the plant out of the pot, removing a good portion of the soil, slightly pruning the roots, and place in clean pots of the same size or smaller, using a compost of three parts fibrous loam, the remaining portion leaf soil, decayed manure, and wood ashes, with a little sand to prevent adhesiveness. Keep the plants rather close for a time in a moist atmosphere, admitting more air gradually until they can endure full exposure to the sun. Shift them in larger pots as needed, and any irregularities of growth may be stopped until August.

Mildew on Peaches (R. F. S.).—Your Peaches are attacked with mildew and the trees have probably been too dry at the roots. Water them copiously with liquid manure if the growth is not healthy. Two ounces of guano and an ounce of salt dissolved in four gallons of water would form a suitable stimulant. Also syringe the trees and then dust the affected parts with sulphur; it can be washed off again when the mildew is destroyed.

Seedling Pansies (J. H.).—All the varieties are pretty for border decoration, but few possess any merit from a florist's point of view, and the only two varieties that many growers would consider worthy of preservation are the white with dark centre, No. 4, and the shaded purple self, No. 8. These are distinct and promising, but in the state in which the flowers reached us the petals are lacking in substance; they have no doubt, however, withered somewhat in transit. The purple flower is particularly attractive, and for decorative

purposes we think is little the worse for being oval rather than circular in form. We are glad the Journal affords you so much satisfaction; we receive many similar remarks of approval from correspondents.

Vine not Thriving (F. J.).—All you can do is to syringe the Vine frequently, twice or thrice a day according to the weather, and to take care also that the roots are kept in a moist medium. Shortening it further will not be advisable now. It may eventually commence growing, and it may not. So far as we understand the case, a Vine so large and with such few roots was scarcely worth replanting.

Pansies Dying (Idem).—Some plants die from a cause that appears quite obscure, many fail because the growths have been twisted by the wind, and a great number succumb because they were not planted soon enough nor the roots inserted deep enough. In some soils, however, Pansies appear to wither and die even when the best possible treatment under the circumstances is accorded them.

Soil for Plants (Idem).—As your plants are in "perfect health," the soil in which they were potted and the treatment to which they have been subjected have obviously been correct. It is the fibre in the soil that has given it the "springy feel." Cocoa-nut fibre refuse may be used in place of peat for Ferns and some other plants, but it is not an efficient substitute for peat in the culture of Heaths and hardwooded peat-loving plants generally.

Neglected Garden (J. K. R.).—You may dispense with salt, at any rate for some time to come, but after the land has been cleaned you may add lime freely. It should be quicklime fresh from the kiln, placed in heaps of a few bushels each, to be covered with soil roughly. The lime will soon slake. The heaps can then be spread, and the lime forked into the soil at once. In the spring, if the weather be dry, you may sow salt at the rate of 20 bushels per acre, and hoe it into the surface. Do not trench the ground 2 feet deep, but fork it well and deeply over, bringing up only a small portion of the subsoil, breaking the rest up and leaving it; to bring a great quantity of this to the surface would be injurious. Such fresh land we should expect would grow a good crop of Champion Potatoes without manure; but if they did not grow freely you could give a top-dressing of guano at the rate of 5 cwt. per acre, applying before hoeing the Potatoes, and, if possible, in showery weather. If the ground appears poor you can spread superphosphate of lime in the rows when planting, just making the ground white, or at the rate of 2 or 3 ozs. per square yard of surface. The land will be much cleaner after the Potato crop, and can then be trenched.

Saving Cabbage Seed (Brassica).—You will not be able to save any seed from your selected Cabbages this season, and some difficulty, owing to their earliness, will be experienced in getting them into good condition for seeding next season. We should select a few of the latest and best, and when fully grown lift them with a fork and bed them in where they will be well exposed to the sunshine without being either unduly sheltered or exposed to the winds. They should be disposed about 2 feet apart each way to allow the bloom branches to properly develop; and if the stems are buried in a slanting direction and up to the best leaves, the older leaves being pulled off, they will be less liable to injury from severe frost. Do not cut the heads now—not, however, because the "seed stems will come through them," but with the motive of retarding the growth of the greens, which will yield the seed the following spring. The lifting is also advised as retarding the second growth. The heads will eventually burst and decay; they can then be removed, and late growth will follow. To cut the heads as some growers usually do, would in all probability result in early second growths, that would heart this season, and be too tender to stand the winter. No other species of the Brassica family ought to be saved in your immediate neighbourhood, or the action of the bees will render your stock worthless. The seed stems will require staking early, as they are apt to split off.

Grapes not Setting (Subscriber).—The vine has been kept too close and probably too moist, and there has not been a free dispersion of pollen. The exudation of a globule of liquid from the stigma has also further prevented the action of what little pollen there may have been on the ovaries. The method to adopt in such a case is to pass the hand lightly over the bunches when flowering, or otherwise agitating them so as to remove the moisture and permit the pollen to come in contact with the stigmas. Bunches in the condition of the one you have sent are, we regret to say, beyond remedy, and by no means whatever can you induce the incipient berries to swell. We know there has been some defect in ventilation by the flaccidity of the leaves and the scorching that is apparent. There are indications also that the border is too rich or the Vines have been overfed with liquid manure. An application of lime to the border might be of great benefit, spreading it on a quarter of an inch thick and very lightly pointing it in. We think we know what the variety is, but decline to commit ourselves on the point. At the same time we ought to feel it a compliment to be supposed competent to give the name of a Grape from a bunch with berries not much larger than pins' heads, and without being told whether they are black or white when ripe. We presume you could have told us this, since you say the Vines have been planted four years. Try the effects of half an ounce of paraffin well mixed in a gallon of soft water for destroying mealy bug on Coleuses, or fir-tree oil of twice the strength; but proceed cautiously and by way of experiment, as the action of the oils varies according to the nature of the water that is used.

Pyrethrums (M. H.).—They are amongst the most beautiful and easily cultivated of hardy flowers, and only need to be planted in ordinary fertile garden soil and protected from slugs to flourish. They are increased by division. Plants can be purchased and planted now, as stocks of the best varieties are kept in small pots by florists to insure safe removal. The following are very fine varieties:—Single Forms.—Albion, pure white; Amy Hare, amaranth; Calphurina, French white; Cybele, French white; Coningsby, carnine; Corello, cherry rose; Crimson Gem, deep crimson; Dorothy Compton, flesh; Duke of Albany, cherry red; Foix, rose, white ring round stamens; General Roberts, crimson scarlet; Homerus, crimson and white mottled; Juno, rosy lilac; Magnoletti, white, tinged flesh; Mercury, rose; Mrs. Laxton, violet crimson; Romeo, scarlet; Roscius, pink; Rosy Morn, cherry rose; Sir Jos. Porter, bright carnine; Sirdar, carnine; Speciosissima, amethyst; Thos. Carlyle, purple crimson; Triumphans, rosy purple; Villago Maid, pale flesh; Vivian, cerise; Zancetta, flesh; and Zarita, carnine rose. A few choice double varieties are submitted:—Lady Derby, silvery flesh; Rembrandt, rosy purple; Capt. Boyton, crimson scarlet; Capt. Nares, bright crimson; Princess de Metternich, white; Mont Blanc, pure white; Cleopatra, yellow and white; Duchess of Edinburgh, mauve; Solfaterre, cream; Madame Billard, white, tinged rose; Minerva, rose; Vance, cream, tinged flesh; Kreimhilda, peach, tinged yellow; and Flaccida, peach. We are sorry we cannot supply you with the information you need on spinning and drying wool; but do not think it possible for the wool from your sheep to

be dressed like Berlin wool, which is the product of Merino sheep reared in Saxony, and essentially different in texture from the wool of English animals.

Peaches and Nectarines (*East of Berwickshire*).—Your letter implies that you have not had much if any experience in growing these fruits under glass, and under these circumstances planting the trees in the border and training them to a trellis would probably be the safest plan to adopt. By growing trees in pots you could have a greater variety, but much care and some skilled attention are requisite for preventing a failure occurring by some cause or at some time or other, and such failures are not infrequent. Whether to grow Peaches or Nectarines is a question of taste. A useful Peach not difficult to manage is the Royal George; a good Nectarine, Lord Napier. If you can arrange the trellis over the border so that it does not shade the back wall, you might have two trees on the wall also, and these may be Victoria Nectarine and Early Grosse Mignonne Peach. A narrow path 2 feet wide between the wall and trellis would suffice for attending to the trees.

Orchids for a Stove (*G. S.*).—The following would succeed in the temperature you name if the supply of water is carefully regulated, excess in the dull season or insufficient in hot weather being equally injurious:—*Aerides odoratum*, *Calanthe Veitchii*, *C. vestita rubra* and *nivalis*, *Cymbidium eburneum*, *Cypripedium insigne*, *C. barbatum*, *Dendrobium crassinode*, *D. densiflorum*, *D. lituiflorum*, *D. nobile*, *D. Pierardi*, *D. Wardianum*, *Lycaste Skinneri*, *Pleione humilis*, *Sobralia macrantha*, *Stanhopea Martiana*, and *S. tigrina*, *Thunia alba*, *T. Bensoniae*, *Vanilla aromatica*, *Vanda cœrulea*, *Zygopetalum Mackayi*, and *Z. maxillare*.

Barkeria Lindleyana (*M. Brierley*).—Very few Orchids are adapted for culture in ordinary greenhouses with other plants, and the *Barkeria* would not succeed in such a position, though it will thrive in a moderately cool temperature. The minimum should be 50°, and it may rise to 70° in the daytime, or even higher at this season with liberal ventilation. Established plants are rather dear, for a guinea and a half upwards according to the size and condition of the plant.

Measuring Land (*An Apprentice*).—You have no need to apologise under the circumstances you describe, and it is creditable to you to endeavour to learn now what you had no facilities for learning before. It is undoubtedly desirable that you should be able to measure land, but we can scarcely hope to enable you to become proficient from an answer in this column. One lesson we can give you, it is from the writings of the late Mr. R. Fish, addressed to young gardeners, and by making yourself master of the principles it embodies you will find that measuring an "awkward field" is not half so difficult as it appears to you now. "Measuring the contents of a garden or a field is as simple as measuring the top of the table on which you take your breakfast. Of all oblongs or squares, length and breadth multiplied together give the area. In triangles, right-angled, the base and half the perpendicular multiplied together give the area. In irregular gardens or fields, with no two sides and no

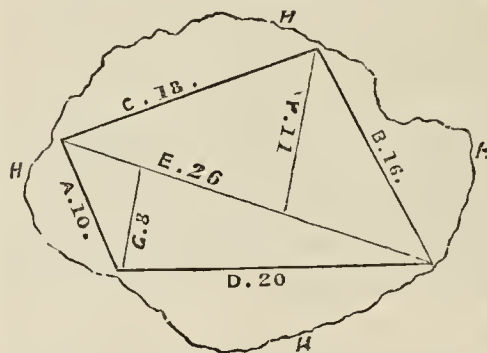


Fig 98.

two ends alike, and yet not a vast difference between them, we take the average of the ends and of the sides, and multiply them together. Thus A, B, C, D, is an irregular field of four sides, A 10, B 16, C 18, D 20. Add A and B together, which would be 26, the half or average of which is 13. Then add C and D together, which makes 38, half of which is 19, multiply 19 and 13 together, and you have 247 for the area. A truer method, if there is much difference in the opposite sides, and one which often involves less trouble, as it saves going round all the sides, is to take the diagonal line across, E 26, and then the two perpendiculars, F and G, 11 and 8 respectively, which added together make 19, the half of which is 9½, which multiplied by 26 gives the same sum of 247 as the area or measurement of the surface enclosed by the four outside lines. Did the field or park have a boundary, as that marked by H H H H, it is most likely we would use one of the two modes referred to for measuring the bulk or centre, and we would throw the outsides into triangles, squares, or oblongs, regular or irregular, and add their contents to the centre. Straight-lined gardens and fields will ever have an advantage as respects utility, though they be less picturesque in consequence."

Names of Fruits (*W. F. E.*).—Your Apple is the Winter Greening, the fruits of which are in firm and sound condition. It is a very useful kind for late use.

Names of Plants (*D. H. Myers*).—We should have been glad to have had some particulars of the habit of the plant and the conditions under which it is grown. We can only say the flower appears to be an imperfect example of *Tropæolum speciosum*, but it is very early for this species to flower. You will find a figure of this beautiful *Tropæolum* on page 521 of our issue of December 8th, 1881. (*J. S.*).—1, *Stapelia variegata*; 2, *Abutilon Boule de Neige*; 3, A small form of *Begonia nitida*; 4, *B. Weltoniensis*. (*H. P.*).—*Dendrobium Dalhousianum*. (*R. F. S.*).—1, *Diplazium glutinosum*; 2, *Azalea indica variegata*; 3, *Kalosanthes coccinea*. (*K. L. Cheshire*).—1, *Ornithogalum exscapum*; 2, *Sedum azoideum variegatum*; 3, *Nepeta Mussini*.

COVENT GARDEN MARKET.—JUNE 4TH.

THE late dull weather has considerably affected the quality of the outdoor Strawberries reaching us the last day or two. The early part of the week showed signs of a good supply, but they are now at a standstill. All classes of outdoor fruit are plentiful and prices lower.

		FRUIT.			
		s. d.	s. d.		s. d. s. d.
Apples.....	½ sieve	0 0	0 0	Grapes	lb. 2 0 to 4 0
Apricots.....	box	2 0	2 6	Lemons	case 15 0 20 0
Ditto	"	1 0	2 0	Melons	each 3 0 5 0
Cherries.....	lb.	0 0	0 0	Nectarines,	dozen 6 0 12 0
Chestnuts.....	bnshel	0 0	0 0	Oranges	100 4 0 6 0
Currants, Black..	½ sieve	0 0	0 0	Peaches	dozen 15 0 20 0
" Red.....	½ sieve	0 0	0 0	Pears, kitchen ..	dozen 0 0 0 0
Figs.....	dozen	6 0	8 0	dessert	dozen 0 0 0 0
Filberts	lb.	0 0	0 0	Pine Apples, English	lb. 3 0 4 0
Cobs.....	100 lb.	45 0	50 0	Strawberries	lb. 1 0 3 0
Gooseberries	½ sieve	3 0	0 0	Walnuts	bushel 7 0 8 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2 0	4 0	Mushrooms	punnet	1 0	1 6
Asparagus	bundle	3 0	6 0	Mustard & Cress ..	punnet	0 2	0 3
Beans, Kidney....	100	1 3	1 6	Onions.....	bushel	3 6	0 0
Beet, Red.....	dozen	1 0	2 0	" pickling	quart	0 0	0 5
Broccoli.....	bundle	0 9	1 6	Parsley.....	doz. bunches	3 0	4 0
Brussels Sprouts..	½ sieve	0 0	0 0	Parsnips	dozen	1 0	2 0
Cabbage	dozen	0 6	1 0	Potatoes	bnshel	2 6	3 6
Capsicums.....	100	1 6	2 0	" Kidney.....	bushel	3 0	3 0
Carrots, new.....	bunch	1 0	1 3	Potatoes, new	per lb.	0 1	0 2
Cauliflowers, new	dozen	3 0	4 0	Radishes....	doz. bunches	1 0	0 6
Celery	bundle	1 6	2 0	Rhubarb	bundle	0 4	0 6
Coleworts.....	doz. bunches	2 0	4 0	Salsafy.....	bundle	1 0	0 0
Cucumbers.....	each	0 4	0 6	Scorzonera	bundle	1 6	0 0
Endive.....	dozen	1 0	2 0	Seakale	basket	0 0	0 0
Fennel.....	bunch	0 3	0 0	Shallots	lb.	0 3	0 0
Garlic	lb.	0 6	0 0	Spinach	bushel	3 0	0 0
Herbs	bunch	0 2	0 0	Tomatoes	lb.	1 0	0 0
Leeks.....	bunch	0 3	0 4	Turnips, new.....	bunch	0 6	0 0



POULTRY AND PIGEON CHRONICLE.

THE SHORTHORNED BREED OF CATTLE.

THE rise and progress of this remarkable breed of cattle cannot fail to be interesting, instructive, and important to the home farmer, because many excellent lessons are taught by their history and origin. They were derived originally from rather meagre sources in their parentage, but were raised into at once the most useful and the most profitable cattle the world ever saw. But when we consider the intelligence and practical enthusiasm displayed by the originators of the breed, and the large sums of money which have been expended in connection with shorthorned breeding, we must admit that it is right that the names and doings of the most prominent men should be remembered as examples worthy of being followed by the present and future generations of cattle breeders.

One fact to be considered in connection with raising improved Shorthorns is that the soil and climate of those counties and districts, such as Northumberland, Durham, Yorkshire, and Lincolnshire, were in every way suitable for such a race of cattle; and we must assume that long before our history commences these districts possessed valuable animals, as the natural result of the favourable climate and fertile pastures. This is strongly corroborated by the record which we have of the origin of the "Duchess" tribe of Shorthorns. The original Duchess, bought by Mr. Charles Colling in the Darlington cattle market in March, 1784, was bought by him of Mr. Appleby of Stanwick, who bred her. This statement is derived from an American source—the columns of the "Kentucky Live Stock Record," which further states—"Stanwick is a small village and parish near Stanwick Park, and Mr. Appleby was a tenant of the Aldborough estate, but his farm was in the parish of Stanwick. He had owned this tribe of cattle himself for thirty years, and it had been in his family's possession in all quite fifty years, his father having bred the female ancestors, and Mr. Appleby deriving them from him. Here we have the true history of the origin of the 'Duchess' tribe. It is therefore clear that a plain tenant farmer bred the original cow of the tribe which came into Mr. Charles Colling's possession, and who bred from the tribe for twenty-six years. Now this statement is confirmed by a letter from Mr. Charles Colling dated from his farm at Ketton, December 30th, 1810, to Mr. Thomas Bates, setting forth the pedigree of 'Young Duchess,' which was purchased at his sale in the same year." This sale seems to have been the starting point of the general distribution of the best shorthorned blood at that time in existence throughout the kingdom.

Some farmers are disposed to assert the want of improvement

in the Shorthorns of the present day, and this with some degree of truth must be admitted, if taken in comparison with the Ketton herd; but at the same time we must admit the wonderful improvement of the general stock of Shorthorns in the kingdom, and their wide and far-reaching extension in almost every soil and climate therein. This brings us to the point of difference in the shape, growth, and quality of the stock of Messrs. Colling and Mason, as illustrated and shown by the pictures in the "Agricultural Gazette," taken from an old folio by Garrard which we have now before us, of two fat oxen which were bred respectively by Mr. C. Colling and Mr. C. Mason in the year 1795—the Ketton roan ox bred by the former gentleman, afterwards known by its exhibition and travels throughout England; the white Chilton ox bred by the latter gentleman, which, although far less widely exhibited, but which old north-country breeders have been heard to prefer. For the style, shape, and general conformation of these superior animals we look in vain in the present race of Shorthorns. These oxen, although somewhat different in style, yet were certainly very closely resembling each other in those points so much esteemed by the butcher, and also well calculated to yield to the grazier weight of meat for food consumed. We allude more particularly to the Ketton ox as being of great size and substance, with fine long hind quarters. The space from hip to the rib was long, but the evils which exist in most herds of the present day in consequence of an extreme length in this part were counteracted by a broad back and high round ribs, the carcass being fully completed by the filling-in of the shortened neck and the heavy forequarters. We have observed in late years many attempts to lengthen the hind quarters of the animals in certain fashionable herds; but it has invariably resulted in disappointment, for what was gained in length of hind quarter was lost in the substance behind the shoulder, and the result also of a weak sirloin; and as these are the most valuable points in the carcass to the butcher, so they are likewise of the utmost importance to the grazier in returning heavy weight for age and the food consumed. To the breeder of show animals these points are invaluable, as no well-bred animal can be perfect without them.

This brings us to the points included in the animals perfected for exhibition which we see now. We may perhaps call them, as included in compact and square-like frame, the old style of the Ketton stock, the elongated square being absent, and perhaps never to appear again until some one or more breeders arise gifted with the same skill in all the requirements which was pre-eminently possessed by Mr. Charles Colling, and, to some extent, by his near compeer Mr. Charles Mason. The sale in 1810 of the cattle reared by Mr. C. Colling may be said to have inaugurated a new era in Shorthorn breeding, for it was noticed that few persons bought both male and female animals on that occasion, so as to enable them to continue the same precise blood; consequently the purchaser of one animal only had to mate him or her with such stock as he previously possessed, thereby improving the progeny of his own but deteriorating that of the purchase; so that the produce was sure to be inferior to the original Ketton beast, and might in most cases require several judicious crosses with good animals, if the right stamp could be found, to raise them to the original standard. In fact, it was a rare occurrence to find a really valuable herd of pure and close descent from the Ketton breed—at any rate, until the Ketton stock sold at Mr. C. Colling's sale in 1810 had been for some years located upon other soil and climate than that of the Ketton district, for we are obliged to say that Mr. C. Colling's style and pedigree of stock was maintained almost entirely upon the principle of breeding in-and-in, as it is called; therefore, when the animals were sold into different districts it ought really to have been not only the commencement of a new era, but also a maintaining of the original style and type by an infusion of invigorated

blood, by the influence of soil and climate upon the offspring of the animals dispersed at the sale. We have, however, no evidence to support the fact that these animals or their progeny were mated together in after years without alloy, which will clearly account for the actual style and type of the Ketton herd, and represented by Mr. C. Colling's fat ox which was exhibited, as before alluded to, being eventually lost by the dispersion and sale of his cattle in 1810. In this matter we find Mr. John Wright, in his valuable and practical essay on Shorthorn cattle published in the Journal of the Royal Agricultural Society of England in 1846, confirms the opinions we have expressed when he says: "Assuming, then, that the Shorthorns have never equalled the perfection in which they were presented to us by Mr. C. Colling, it behoves us to ascertain the means he used to accomplish so desirable an object." But we can only say that from that time to the present it has not been done.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This work is now divided between preparation for root crops and drilling the seed and grass-cutting for hay with the mowing machine. It is, however, rather late for drilling Swede seed except for sheep on the limestone and chalk hill farms, for the purpose of feeding late in the spring of next year. When the weather is cold and the spring backward late-sown Swedes of the hardy purple top variety will keep well in the land when crowned down—that is, by cutting of the greens in the month of March with a fagging hook just below the rim on the crown of the root formed by the fall of the first leaf. By pulling enough roots to make a road in the required direction for a horse and cart to remove the greens as fast as cut for the sheep or other cattle, it affords, without injuring the feeding value of the roots, enough green food to pay for the labour, and the roots may then be left in the land until required for use until the end of June or the first week in July in sound and valuable condition. They may be followed by another root crop, such as Rape or Thousand-headed Kale, or Turnips to be fed off for a Wheat crop.

Hay-making will now employ both hand labour and horse labour, and the home farmer may now feel himself safe from serious damage if he will adopt the plan of what is called "self-making of hay," &c., for if his ricks are built about 18 or 20 feet square, and the requisites for exhausting undue heat properly provided and adjusted as recommended by Mr. Neilson and Mr. Knowles, he will get rid of all the harassing disappointment and extra expenses peculiar to haying and harvesting in adverse weather. These gentlemen state that during ten years' experience they have had no trouble at all on their farms with any hay, even the newest and wettest which have been stacked where this system has been practised. As Messrs. Suttons of Reading have offered a prize of one hundred guineas to the exhibitor of the best set of tackle for the above purpose at the Royal Agricultural Society's meeting at Reading next month, we advise every farmer who possibly can do so to see the system in full work on the occasion, for the system is established; it is now only required to improve the tackle as much as possible and to construct the ricks as necessary in shape and size.

Live Stock.—Abundance of grass and green fodder everywhere prevails, and we can recollect no season since that of 1868 at all equal to the present promise for all crops of the farm taken together. The cattle for beef will answer well no doubt this year, also dairy cows grazing for milk, butter, or cheese-making must with care and economy be successful this season, the only drawback being that those who have purchased their cattle have been obliged to pay high prices for them. This fact, however, only shows the advantage to the home farmer of raising every animal of the live stock which he requires upon the home farm under his own management, as we have often advised, it being the best and only way to obtain the full profits of stock farming. The Down ewes for breeding early lambs should now be mated with well-bred South Down rams and liberally fed until all are assured to be pregnant, as the plan of buying ewes first out of the wool and breeding from them is better than buying the ewes in lamb during the autumn.

POULTRY AND PIGEONS

PIGEON LOFTS IN SUMMER.

It is some weeks since we gave some elementary instruction on the management of Pigeon lofts in spring. Summer has come in date if not in temperature, and we will pursue our subject through the present season. Pigeons if well housed and shaded from the midday sun rejoice in heat, and our own have always reared a more numerous progeny in hot than in cold and damp summers. Indeed, we remember that in the deplorable season of 1879 we almost entirely failed to rear any. In spite, however, of this fact there are precautions to be taken in summer. Plenty of fresh air is absolutely necessary to keep Pigeons in health. Those who keep them

in pole houses or boxes against a wall (both miserable habitations, be it remarked), give them air enough, and too much; but the more careful who house them in substantial buildings with wired aviaries in front must take care to have proper ventilation in the said buildings—not draughts, but shutters, sliding or to let down on hinges, to admit air in warm weather, and during great heat the doors should be left open all night. Of course, we presuppose that the outer aviary is strong and the wire quite vermin-proof. Some people keep Pigeons permanently in sheds, well roofed, with back and ends enclosed, and the front of wire. Many kinds become very hardy, and thrive well in such quarters, but we should never ourselves construct such abodes, for in winter young birds must often succumb to cold in them, and during snow they are miserable. Another thing to be remembered and guarded against is that some colours of plumage, especially red and yellow, are much spoilt by hot sun. The richer and sounder the colour be, the less it is affected. Still, even the best birds do suffer in beauty, and so temporarily in exhibition value, from exposure. This does not much matter if they are not required for show till they have moulted, but directly the moult begins valuable specimens should be kept out of burning sun, otherwise the tips of the new coloured feathers are almost bleached, and the coloured parts as a whole appear mottled and broken instead of smooth and flat.

As in the poultry yard so in the Pigeon loft, special care must in summer be given to all sanitary arrangements. The floor of the house should be kept thickly covered with sand, gravel, or dried earth, and this must be frequently raked over. If, however, Pigeons are kept in a boarded loft sawdust will be found the cleanest and best coating for the floor, but then gravel or grit must be given in pans. The plainer and less complicated the nest boxes are the better. In the crevices of even the plainest, vermin will sometimes lurk. If they are anywhere about they will show themselves in the newly hatched nestlings, and they must at once be exterminated or they will prove fatal to the health of the young birds, and sometimes become such a plague as to drive the old ones to desert their offspring. The commonest of these pests are mites, black at first, and then crimson from being gorged with the blood of the unfortunate Pigeons. They dislike paraffin. A drop of it should here and there be dabbed on the young birds, and it may be freely rubbed with a brush into all the joints of the nest boxes. At the age of from two to three months young Pigeons go through a partial moult, and suffer from a kind of distemper. They then mope, and if the weather is at all cold often shiver. Old birds and odd cocks frequently persecute and drive them from their food, and a little care must be bestowed on them. The coarser and commoner specimens soon get over it and scarcely show it at all, but the smaller and more delicate birds must be watched and petted or many will die. If we merely wished to perpetuate the race through the most robust and largest birds, as in the case of many kinds of fowls, Nature would make her own selection and rid herself of all weakly and delicate Pigeons, but in the case of most of our Toy breeds these smaller and more refined birds are precisely those which we wish to rear for their beauty and elegance. As soon as a young Pigeon is seen to droop our first care is to bring it into a warm place; we do not mean a hot room, but a place protected from draughts by day and from damp by night. A few exhibition pens in an unused room are a capital Pigeon hospital. Each must be cleanly sanded and have a drinking vessel hung up in it. Here give the birds whatever food they seem to like best; a little hemp will generally tempt the appetite of the most sickly. With no other treatment than this rest from the bustle of the Pigeon house and shelter from extremes of heat and cold we have cured many a drooping bird, and returned it fat and happy in a week or fortnight. Pigeons thus cosseted become very tame. Our own often learn where the room with the pens is, fly in at the window in after days, and if a pen is open pen themselves. We have traced the success of some exhibition birds partially to this source. They are accustomed to a pen and like it, and so always show themselves to the best advantage in one.

There is a far more serious bane of the Pigeon loft than this common distemper, one which in highly bred birds generally proves fatal if once it develops itself—we mean canker in the mouth and throat. How far it is a cause of illness and death, or how far an effect of some internal malady of which we are ignorant, we have never been able entirely to make up our minds. We do not for a moment pretend to any scientific knowledge of surgery or pathology. We have carefully observed this and other diseases in Pigeons, and give the results of our observations and treatment only for what they are worth. Canker may appear in Pigeons of any age. In adults it is almost always curable; in squeakers it is very seldom so. The signs of it are a yellowish white substance in the throat and mouth, which, if not checked, rapidly spreads, and in the case of very young birds often fills the throat and mouth and absolutely chokes them. What inclines us to think that it may be the effect of some deep-

seated malady rather than itself the disease is that we have often seen nestlings fail, look rough and dumpy, and either refuse to be fed by their parents or become unable to swallow before any visible signs of canker appear in the throat. In a day or two, however, the fatal white spots make their appearance, spread rapidly, and death soon follows. In the case of adults or very strong young birds every one of these spots must at once be touched with a caustic pencil. They generally reappear, and have again to be burnt out. The remedy is, we fear, a painful one, and not always successful. In the case of nestlings under a month old it seldom succeeds. We have been trying another remedy, of the efficacy of which we have great hopes. It is, however, against our custom ever to give vague untried recipes, and till we have made further and more complete experiments we shall not publish it. We hope ere long to devote an entire article to this disease and its cure.—C.

FOWLS AND ARTIFICIAL INCUBATION IN INDIA.—The report of the Superintendent of the Government farm at Khandish states:—“The efforts made to secure a number of Persian fowls have, so far, been unsuccessful, although the Bombay market has been carefully watched. Superior indigenous kinds have been tried under good treatment, and the improvement in some cases is surprising. The eggs of some fowls got from the villages averaged only 2 ozs., while the next generation, well fed through chickenhood, now lay eggs averaging over 2½ ozs. One of Christy's hydro-incubators was received direct from the makers in the month of November. The incubator was at once set going, and although nominally a ninety-egg drawer the accommodation is sufficient for 130 village common eggs. As such a quantity was not at once procurable, the remaining space was filled up with a miscellaneous lot of quail, pigeon, and other eggs, most of which submitted to the process of incubation. On the nineteenth day fifteen in twenty of the fowls' and all of the quails' eggs had hatched, while those of the pigeons were found to contain living birds. Much cannot at present be said as to the value of artificial incubation for India; it is much to be desired, however, that this or some other means may soon be discovered to develop this much-neglected branch of rural industry, so that the country might be generally well provided with eggs and birds, and thus enable district officers and others to secure their needed supplies on more strictly commercial principles. Mr. Robertson, the Commissioner, writing to the Superintendent of the farm, trusts the experiments with the hydro-incubator may be satisfactory. He is convinced that a highly remunerative and successful result can be obtained, as he has now for nearly four years used with the most remarkable success one of Christy's hydro-incubators. The success with ducks has always been greater than with fowls.”

OUR LETTER BOX.

Canary Unhealthy (F. G.).—As you appear satisfied there are no insects on the bird we can only attribute the symptoms you describe to incipient and premature moulting. In this case feed the bird generously, giving a little egg, millet seed, maw seed, and groats, and not much green food, plantain stalks being the best, nor is it advisable to give hemp seed. Birds usually become drowsy on the eve of moulting. Keep it from draughts and put a rusty nail in the water.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882. June.	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun. 4	29.745	58.5	55.8	S.W.	57.2	69.2	52.6	119.8	49.4	0.215
Mon. 5	29.805	59.8	54.4	S.W.	57.2	64.9	48.5	101.0	45.4	0.049
Tues. 6	29.712	57.0	55.6	S.	56.8	63.2	54.8	106.0	54.8	0.152
Wed. 7	29.749	61.8	54.0	W.	56.7	69.3	51.8	125.8	50.3	0.010
Thurs. 8	29.888	60.0	55.0	W.	57.3	64.2	47.5	113.5	43.2	0.334
Friday 9	29.446	50.6	50.6	S.W.	57.0	62.2	49.0	119.8	46.8	0.414
Satur. 10	29.570	57.9	53.3	N.W.	56.8	61.7	49.7	106.2	49.2	—
	29.702	57.9	54.1		57.0	65.7	50.6	113.2	49.4	1.174

REMARKS.

- 4th.—Fine on the whole; but squally at times, with sharp sudden showers.
 5th.—Overcast and high wind.
 6th.—Wet morning; fine afternoon and evening.
 7th.—Shower at 10 A.M.; afterwards fine, bright, and breezy.
 8th.—Showery in forenoon; afternoon fine; rain after 7 P.M.
 9th.—Frequent heavy showers with bright intervals; lightning and thunder at intervals from 0.10 till 6 P.M.
 10th.—Dull overcast morning; fine and bright latter part of day.

A showery week; days cooler than last week; nights rather warmer (owing to increase of cloud); thunder nearly all the afternoon of the 9th.—G. J. SYMONS



22nd	TH	Chiswick and Bury St. Edmunds Shows.
23rd	F	Scottish Pansy Society's Show.
24th	S	
25th	SUN	3RD SUNDAY AFTER TRINITY.
26th	M	[gonium Society's Show. Thornton Heath & Maidstone Shows.
27th	TU	Royal Hort. Soc., Fruit & Floral Committees at 11 A.M. Pelar-
28th	W	National Rose Society's Show at Bath. Lee, Fareham, Croydon, [and Hitchin Shows.

ECONOMISING WATER.

THE fact of plants obtaining the greater part of their food in a soluble condition from the soil, though well known, is not always sufficiently considered in practice. Gardeners know so well from experience the results which follow inattention in watering plants in pots, that only careless or greatly overworked men allow deficiency in this respect. Amateurs are often guilty of allowing their plants to become overdry, and perhaps any such who may read these notes will "aiblins tak' a thought an' mend."

We will suppose a plant in perfect health, say a *Pelargonium*, a *Fuchsia*, a *Coleus*, or a *Cineraria*—all commonly grown plants, allowed to become overdry. The leaves droop and become flaccid; the soil is after a time soaked with water, and to all appearance no harm has been done; but such is not the fact. All the roots of the plant are capable of imbibing moisture, but the real purveyors of plant food are of a very delicate nature and easily destroyed; consequently, although the plant may appear none the worse, yet on examination of the roots it will be found that great damage has resulted. Before the plant flagged, had the roots been examined, the latest-formed portions would be found completely covered with fine hair-like rootlets, their function being to supply food to the older roots, to be conveyed thence to the stem and leaves. The result of an insufficient supply of moisture causes the death of these rootlets, and the plant is therefore dependant on those portions of the roots matured enough to endure the treatment under which the others succumbed, being therefore partially deprived of food until new roots are formed. In bulbous plants, as, for example, *Eucharis amazonica*, the roots are thick—fleshy, in fact, and in their entire length are absorbent, but the results are the same to a plant in full growth when over-dryness occurs. The fact that bulbs, such as *Hyacinths* for instance, may be grown in quantities in boxes until the flower spikes are opened and then transferred singly into pots without any bad effects, has quite a different explanation. All that we want of the *Hyacinth* is its flower; the growth had been made in Holland the previous year, and after the spike is developed only enough water to keep flowers and foliage fresh is needed.

We come now to the question of how water may be saved in a time of scarcity without harm to plants. It has been shown how over-dryness is hurtful, and it may be here pointed out that it is also a wasteful system. The best way to do with overdry plants is to immerse the pots in a water tank until the soil is soaked, but if this is not convenient do not keep pouring water into the pot. Give a little at a time, and repeat it as many

times as it is necessary to give enough to moisten every particle of soil, allowing time between each application for the water to soak in. Often far too much water is given at one time. "Be sure to give enough to run through the pot" is an order very generally given, yet all that passes as drainage water is waste in two ways. First, it wastes the water itself; and secondly, it does not pass the drainage as the same water that was applied to the surface of the soil. In its way from the surface to the drainage it has taken up material which would have been better left behind.

There is also the question of potting and the size of pots. In everyday gardening it is much better to limit the size of the pot, and the size of the plant if necessary, than to grow them overlarge; but in practice it does not follow that because a small amount of soil is used the plant will be thereby kept a pigmy. A plant in a 6-inch pot will require less water to moisten the soil in which it is growing than one in an 8 or 9-inch pot, nor will it require to be watered much more frequently, for the soil is not only subject to the abstraction of moisture by the roots, but in ordinary conditions it is surrounded on every side by air, which in the case of the larger pot has a greater surface to equalise the difference of capacity. Further, in small pots the soil can be pressed much more firmly, and with good effect, than it can in a large-sized pot, which is another advantage. Then, very generally we might do with much fewer plants than we grow. Where abundance of flowers is required for winter and spring much watering may be saved by planting out numbers of commonly grown plants, either out of doors or in cold frames, repotting the plants in the autumn.

Lastly, many plants usually placed on bricks, ash beds, or gravel walks, may be plunged in coal ashes, or even in soil in the kitchen garden, without any bad effects following, provided care in watering is duly given. Evaporation from the surface of the soil may be lessened by filling up to or over the rim with coarse sand. This plan has the disadvantage of the soil being hidden, and the danger of insufficient watering arising in consequence.

In the management of plant and fruit houses a great saving in water may be brought about by dispensing with much of the "damping down" and promiscuous syringing usually carried out. All commonly cultivated fruits may be perfectly well grown without either. The practice of syringing Grape Vines is now almost obsolete, and damping-down vineries frequently is also being discontinued by many. The best examples of Grapes for home use I have seen for a long time were shown me lately, and were grown without either syringing or damping being carried out. In the same garden were some of the healthiest Orchids I have seen, yet these were growing without any damping in any part of the structure.

In light houses a thin shading will be found of the greatest advantage in very hot weather. It is not absolutely necessary where the ventilation is sufficient and where watering is carefully managed; but where labour is scarce as well as water shade the plants by all means.

The only way that water can be saved in connection with borders in structures devoted to fruit culture is by means of mulching, and the best material for that purpose is horse droppings heated sufficiently to become sweet before using. Applied as a layer 2 or 3 inches thick it has a beneficial effect on trees, the necessary waterings carrying its constituents to the roots.

How often water should be given is a question impossible to answer. In continuous hot weather we have found once a month often enough; but, be it understood, we always give water equal to 3 inches of rain to our borders. Under other conditions we might supply water more frequently or not so often; but at any rate borders should on no account be allowed to become dry before being watered.—A NOR'-EASTER.

WINTER SALADS.

THE time of sowing and preparing winter greens is now here. From November until the end of March is the period when a good supply of salading is wanted in many cases, and by growing the crops named below and following the instructions given all that is wanted may be secured.

Chicory and Witloof.—These are named together, because as seen growing side by side in summer, or forced and placed on the table in winter, an expert could scarcely tell the difference between them. So much do they resemble each other in every way that only one need be grown, and it does not matter much which. Seed must be sown annually, as roots after they are more than twelve months old push up flower stems, and then they are of no further use. When sown early in the season this is also liable to occur before the end of the year; but if sown at once, or about this time, there is no danger of that happening. Moderately rich ground will grow them well. The seed should be sown in rows 15 inches apart. As soon as the plants are large enough to handle they should be thinned out to 1 foot apart, and after this, hoeing between the rows to kill weeds is the only attention wanted. By October roots will be formed not unlike in size and shape good Salsafy, and it is these which will produce a choice supply of salad throughout the winter. About a fortnight or three weeks before this is wanted a quantity of the roots should be lifted and placed in 8-inch or 10-inch pots, almost as close as they will stand, with some light soil amongst them; and then, if placed in a Mushroom house, cellar, or any dark structure where the temperature is 50° or so, fine compact crowns and delicate cream-coloured leaves will quickly appear.

Lettuce.—These are always grown largely where much winter salad is required. Winter varieties should be selected with some care, as the best of the summer kinds are too tender for the winter. In Cos varieties Bath Black-seeded and Moor Park are two good sorts, while in the Cabbage section Hardy Green Hammersmith and Stanstead Park are of proved value. A sowing of each of these should be made at once, and another in a month hence, and the plants from these will come in well all winter. The plants should be grown in rather rich soil, as good Lettuce can never be had from poor land. The most profitable way is to fill up ground with them which has lately been cleared of other crops. A south border is a good position for the main crop of winter Lettuces. Having the plants a foot apart each way is a good distance for all, and they should be hoed amongst frequently. So long as the weather remains mild protection will not be wanted; but when frost comes covering up or lifting and storing in frames may have to be resorted to. This, however, is work which may be pointed out at the proper season.

Endive.—In culture this does not differ materially from the preceding. In fact in this respect they are so much alike that they may be sown on the same day and be grown side by side afterwards. Early-sown Endive is always most liable to bloom prematurely, and it is of little use sowing it before this time, while a sowing may be made as late as the beginning of September. Sometimes Endive is used in salads early in the autumn, but it is in winter when it is most in demand. Green Batavian and Green Curled are two of the best varieties.

Radishes.—A few crisp tender Radishes are always acceptable, Black Spinach and China Rose are the best sorts for the season we have in view. The China Rose is undoubtedly the better of the two, but it is not so hardy as the Black one, and on this account if it was not included we might find ourselves without Radishes in the middle of a severe winter. Two sowings only need be made, one at the beginning of August, the other early in September. An open sunny position is the best position for them. The seed should be sown thinly in drills 12 inches apart. When they come up very thick in the rows it is well to thin some of them out early, but they need not be left very wide apart at first, as when they begin to bulb the large ones can be drawn for use and the others thereby given more room. All should be of fair size by the beginning of November, as after that time they grow slowly, if at all. Protection may sometimes be wanted, and if the roots are lifted and stored in a cool shed among leaf soil, they will remain good for two months or more.

A supply of Mustard and Cress is secured throughout the winter by sowing the seed in cutting-boxes, which are 4 inches deep, 14 inches wide, and 2 feet 6 inches in length. I need not describe the mode of sowing and growing this simple but serviceable crop.

Cucumbers, Celery, and Beet all come under the heading of winter salads, and valuable additions they make. Unless with proper accommodation winter Cucumbers are difficult to produce, and are only grown by the experienced and the few, but Celery and Beet may be grown by all. Now is the time to plant Celery, rich moist soil being essential. Dell's Crimson Beet is a fine variety, and the plants should be sufficiently thinned out to produce good roots ready for storing in October.—J. MUIR, *Margam*.

THE FLOWER GARDEN IN SPRING.

ON page 444 "W. I. M." admits the soundness of my notes on page 406 under the above heading, and the beauty of spring flowers, but evidently is afraid some should be stimulated to commence raising a stock of plants for the spring garden. It was far from my intention to incite overworked gardeners to embark into another undertaking when they have already enough, and in many instances too much, to do with the means and labour at their disposal. Many, I feel confident, who take an interest in flowers and in seeing their gardens attractive would not begrudge a little extra labour for a week or fortnight to help if the general staff were inadequate. But my notes were not intended for such practical gardeners as "W. I. M.," but for those who have small gardens and are anxious to have them gay, and delight in tending and dressing them after business hours. There are many of such who could make their gardens attractive during the whole of the spring, and when once in possession of plants they would cost them nothing afterwards but the labour, which should prove a pleasure rather than otherwise. Some years ago I gave a hamper of Daisies, Pansies, Aubrietia, and other flowers to a cottager, and his little garden this spring was the most delightful in the village. Many more are now following his example, and what will add more to the beauty and cheerfulness of their home, however humble, than spring flowers?—WM. BARDNEY.

LAYERING STRAWBERRIES.

THROUGH pressure of other work we did not layer any of our young Strawberry plants last year, but lifted them from where they had rooted, and potted them; but we shall be busy indeed if the practice is repeated, as we were anything but gainers by the economy in labour in so doing. Although the young plants had plenty of roots, they did not start into growth so freely afterwards as those we were formerly in the habit of rooting in small pots and potting or planting out afterwards. Some of them which were potted into 6-inch pots straight from the quarters almost failed to fruit this spring; this we attribute to the way they were treated when quite young, and also to their being very severely injured in the leaves by the great gale we had in October. There is no plan of raising young Strawberry plants for any purpose to equal layering them in small pots. Operations cannot be started too soon. Before June is past many of ours will have been layered, and all will be finished as soon as possible. Three-inch pots are a good size to employ. Each one should have a single piece of drainage placed at the bottom, the pot afterwards being firmly filled with a mixture of loam and leaf soil or decayed manure. A small hole is then dug in the ground close to the runners, and each pot is put in level with the soil. If the runners have rooted into the ground they must be gently freed from it, and the young plants secured in the pots with pegs. As soon as they are well rooted, which will generally be the case in ten days after layering, they may be detached, and after this they may be placed along the edge of a walk or on any hard bottom for a week or so, when they will be in good condition to shift into their fruiting pots. Only the best of them should be used for this purpose, and the weaker may be planted in the open to form fresh plantations. A few weeks or even days gained now in preparing young Strawberry plants are worth a month of late coddling. The ripeness and proper development of the crowns are the principal points to secure to insure fruitfulness, and attention devoted to this will be amply repaid the following season.—A KITCHEN GARDENER.

By this time those who live in the earlier districts of our country are preparing the layers of Strawberry plants for forcing and also for planting out. It is a matter of some consequence which is the best way, for assuredly it is the early bird which catches the worm in this case. The earlier strong plants can be placed in well-prepared soil the better will the crop be the follow-

ing year. When this is so it may be worth considering what plan is best for securing strong well-rooted runners at the earliest possible date, and for mutual benefit notes might be forwarded by successful growers, which I am sure would be of much interest.

Perhaps the most time-honoured is the plan of layering in small pots. This plan takes time, that sometimes cannot be very well spent. Not only is the filling of the pots and fixing the runners a time-killing process, but the sometimes bi-daily waterings in a serious matter when there is little assistance.

Layering in pieces of turf is also objectionable on the same score. Indeed, it has some faults in addition. Even after the plants are rooted and potted or planted out they are still in some measure isolated and a trouble. Moreover, when in the rows they are in the way of those who gather the fruit, often to their ruin and the gardener's chagrin, for somehow it is difficult to induce assistants to fully understand that even a little damage may make plants quite useless for the special purpose for which they were intended.

Having tried many plans I find the following the best when good results are wanted and time and appliances rather limited. It is simply to secure the runners the moment they show sign of rooting, and to dibble them in closely in a compost of half loam, half well-decayed manure in cold frames. Kept moist and shaded they root and become strong plants, while their equals between the rows are in vain trying to strike root among the mulehng or in the hardened soil. Careless or overtasked people who make plantations with such have no idea what a difference there is between the two systems. Even dibbling them in anywhere in rich soil and shading secure results that might well make out-of-date growers stare. But when treated as described in a frame a year is saved and much better fruit secured.

It is a mistake to delay preparing the ground for new Strawberry plantations until the plants are ready. The ground should always be trenched and very liberally manured on the surface not later than spring. From this the best of early crops of many vegetables may be taken and be cleared off the ground before the Strawberry plants are ready. When the ground is cleared all that is wanted is a slight forking, a levelling, a firming, and a soaking of rain or water to have an excellent bed in which to place the carefully nursed plants. If they are out by the end of July or beginning of August, each, a fortnight after planting, will be greatly benefited by half a pint of liquid manure. Late plants should receive nothing, or the growth made will be too soft for the hardship frost imposes. Spinach may be sown between the rows, or the rows planted twice as thick as they are ultimately intended to be. When the first crop is removed every alternate row may be hoed out.—SINGLE-HANDED.

PIPTANTHUS NEPALENSIS.

THE Evergreen Laburnum is the popular name which has been not inaptly applied to this rare and little-known Indian shrub; but though it bears some resemblance to one of our most common and beautiful flowering trees, yet it can be easily distinguished from it at a glance by the most casual observer, and attractive though it be, it cannot rival its more floriferous relative in effectiveness. Still it is one of those numerous old inhabitants of our gardens that deserve to be rescued from the obscurity and neglect into which they have fallen owing to the continued and extended introduction of novelties.

It is of branching habit, but not bushy, and seems to need support of some kind, as it has a rather straggling appearance. Trained to a wall, as it is grown in the gardens at Shirecliffe Hall, Sheffield, it both succeeds well and is very pretty during May and early June, as it flowers abundantly when in good condition. In a few other establishments it may be occasionally seen, but it is far from being common, though it is quite hardy in most parts of England, needing the protection of a wall in the northern and colder districts, but in the south it is rarely injured, even if planted in the open.

The name given above is the one by which it is best known, but it has several synonyms, *Baptisia nepalensis* being one that is occasionally seen, and more rarely *Thermopsis nepalensis* and *T. laburnifolia*.

WANTED, A GOOD GENERAL CROP LATE POTATO.

I DREW attention through the columns of the Journal lately to the imperfect keeping qualities of the Scotch Champion as one of our most largely grown late Potatoes, and noted the black patches on the flesh—a general complaint, at least in Ireland, from April onwards—that render them wholly unfit for table use. I consigned a quantity to the manure heap, and was not successful a month since in buying better. This is the case of thousands, and

to-day I noticed a Dublin journal complains that the wholesale price of Potatoes there, especially Champions, which, though sold at 8d. per stone (admitting that half are unfit for use), is equivalent to 1s. 4d. for that quantity. Now let me say a word as to the kinds hitherto in use for general purposes before I ask the above question, taking them in the order of their extent of culture.

The White Rock.—This may be said to be synonymous with the Scotch Down, and both have had for twenty years very extended culture in Ireland and in some parts of England and Scotland. They varied when changed from moory land or cut-a-way bogs to upland, and were much superior in quality; but as a general rule both are now worn out, and their place taken very largely by the Champion, and in a less degree by the Magnum Bonum. However, if housed and occasionally turned, and they escaped blight, they were far superior to the Champion during



Fig. 99.—*Piptanthus nepalensis*.

the months of May and June. The fact, however, is of little use, for not one in ten escapes blight up to that period.

There was a coloured variety (the Red Rock) introduced with a flourish about a dozen years ago, but as it was of inferior quality it never had an extended culture, and generally coloured kinds have to encounter a preliminary prejudice on that account alone. Coming under this head is a variety having several commendations—the old Skerry Blue, I believe almost unknown in England, and said to have been raised in the north of Scotland. It is certainly very hardy, yields a fair crop on very poor soil, and is almost free from disease. For twenty years it has maintained a position in parts of Ulster and Connaught, but even under superior culture is of inferior quality. There is another old variety that I have planted rather freely this year—the Kemp, without the shortcoming of the last, but more subject to disease, that I shall have something to say about by-and-by. There is another still, but I have seldom met with it—the late Fortyfold. This does not keep well, and had the flesh curiously streaked. I consider the Late Rose and some other American large late kinds as only fit for cattle

or swine, and need not further refer to them. So much for general crop late varieties as grown either on the farm or in the garden, and I submit that not one of them is perfectly satisfactory.

I am sorry I cannot speak here as highly of *Magnum Bonum* as other and perhaps better authorities do, but a piece on new loamy lea, beside *Champions*, last year were prolific, but much behind them in quality. Would some of your readers tell us their experience of the best late Potato, more especially referring to *Schoolmaster*, *Victoria*, *Flourball*, and *Bread-fruit*? as I have planted a considerable number of these varieties for general purposes, especially with a view to keeping properties.—W. J. M., *Clonmel*.

PHILESIA BUXIFOLIA.

In your last number you have not said one word too much in favour of this most beautiful shrub. Like Mr. Crossling I kept the plant in the greenhouse for many years with the same results as he had. The plant neither flowered nor made any growth until I removed it from the greenhouse and placed it upon an inverted flower pot in a pond quite open to the sun out of doors, the water reaching halfway up the pot, which was well drained. The plant soon commenced growing, throwing up strong shoots. In October it was placed in the Heath pit until the following May, when it was placed in the pond again, where it first flowered. The spring following I placed the plant in a well-drained pan 2 feet in diameter. The compost consisted of rough peat and sandstone. The plant was elevated above the rim of the pan like an Orchid plant. Young strong growth soon filled the pan; the plant afterwards flowered most freely, and continued to do so. I consider this plant to be a semi-bog plant. I do not think it is sufficiently hardy to stand our winters out of doors, except in the most favoured situations.—JOHN NUNNS, *Wimbledon Common*.

A DAY IN KENT.

EARLY in the present month I had the pleasure of inspecting two of the most beautiful, though not large, gardens that are to be found in this beautiful county, and probably in any other county, at this period of the year. In late summer many gardens wherein bedding-out is seen in its greatest excellence, and carpet beds are represented in the "highest style of art," may be at the first glance more imposing and the effects produced more striking; but for real lasting enjoyment, for diversified beauty and an atmosphere redolent of flowers, such gardens as those at Weirleigh, Mr. Harrison Weir's; and at Mascalls, Major Horrocks', as seen in early summer, must carry off the palm. In both of them great taste has been exercised in design and great skill in execution. Both are owned and managed by ardent lovers of all that is beautiful, and both exercise sound judgment in rendering the surroundings of their homes in the fullest extent enjoyable to themselves and their friends, for it is evident that their own pleasure is heightened when the delights of their gardens are shared by others who can also appreciate them. Flowers and plants are selected and employed because they add to the attractiveness of the gardens. There is no prejudice nor fanciful exclusiveness in this matter. Hardy plants are not employed because they are hardy, and tender plants are not excluded because they are tender. If a plant can contribute to the satisfactory effect that is sought for and attained, the question as to whether it is exotic or indigenous has no weight. No "fads" are indulged in, and no whimsical fancies warp the judgment, but the broad principle of action is adopted to procure what are best and most suitable amongst flowers, and dispose them in the best and most appropriate manner. In a word, good taste is governed by common sense, and excellent results, as may be expected, are achieved. As my main object was to pay Mr. Harrison Weir a long-projected visit, the inspection of Mascalls being a mere call by the way, it will be appropriate to first refer to the renowned artist's garden at

WEIRLEIGH.

"If you wish to see a garden in which space is turned to the best account—where the ornamental and profitable aspects of gardening are harmoniously blended—go to Weirleigh." This was the injunction of one who ought to be an authority, for he had seen Weirleigh, and seen also all the best gardens in this country, if not in Europe. He further added, "Mr. Weir's garden is small, not many acres, but he ought to be proud of it, and lessons may be derived from Weirleigh that may be useful to others who have small estates and desire to utilise them ornamentally." Yes, there are no doubt many who desire to "utilise ornamentally," but by no means all succeed in the attempt. If a brief description and a few scattered hints will in any degree aid in the accomplishment of this desideratum the pleasure derived from my day in Kent will be enhanced.

On the summit of a commanding eminence overlooking a wide spreading vale rich in sylvan beauty, and bounded in the distance by a magnificent amphitheatre of hills, the artist's home is situated. It is scarcely possible to conceive any landscape more charming in rural loveliness than the great sweep of country steadily falling from

us, and at a distance of a couple of miles rising again and sweeping backwards and upwards until the earth and clouds appear to meet and bound the horizon. In this great vale, copse and hop garden, orchard and farm, with here and there a village and gentleman's seat, are represented, the whole forming a characteristic example of English scenery in its quietly picturesque aspect such as could not be easily surpassed. Such is the view from Weirleigh; but what of the place itself?

If I were asked to what order of architecture the building belonged I should at once say, The artist's order. I have seen nothing quite like it. It is lofty, commodious, convenient, and picturesque, almost new and well appointed. "Full of pictures no doubt—the work of the owner," some readers may anticipate. Nothing of the kind. These are to be seen scattered in thousands through wholesome and educational serial literature, not at Weirleigh. It is only abroad we see Mr. Weir the artist, at home he is the farmer and gardener, and we find him prospecting his meadow, feeding his poultry and feathered friends in his orchard, or tending the crops in his garden, planning, arranging, hybridising, these being his pleasant occupations, and in none has he worked in vain.

The garden and grounds are quite original in design. There has evidently been no copying here. In some cardinal respects they are in direct opposition to the prevailing taste. For instance, it is usually the rule to have the mansion some distance from the boundary, especially when that is a public road, and the ground contiguous "laid out" as a lawn, trimly dressed and gay with flower beds. It is not so here. The house abuts quite on the road, and the short drive round to the garden entrance is as wild as Nature can make it. The road is cut out of the side of the hill; the jutting rocks are left rugged, the high bank a tangled mass of grass and flowers—Primroses, Violets, Orchises, and Anemones, with whatever else will grow with flowering shrubs overhanging, and here and there a Conifer, such as an *Araucaria* and Irish Yew, with Ferns in abundance. These borders are never dug and never hoed, but are wild, and the paved path up to the side door is in keeping, for small flowers and Ferns spring up between the stones and are not destroyed. Such is the approach to Weirleigh, which terminates in a plateau of gravel at the garden or chief entrance to the residence. In the centre of this plateau is a circular bed some 13 or 12 feet in diameter, occupied with a fine double scarlet Thorn and thousands of bulbs. These remain permanently, and spring from a carpet of Stonecrop, which remains fresh and green throughout the summer. This is an elevated standpoint, affording a view over the garden and for miles beyond it; but though we look over it we do not see all nor half—pretty nooks surprise us everywhere, and cosy seats embowered in foliage invite us to rest and enjoy the outlook which in every case is different, and every one brings some interesting feature or attractive object within the line of vision.

The enclosure may be generally described as horseshoe-shaped, the heels of the shoe resting on the public road, an entrance at one of them conducting to a curving path with a sharp acclivity which leads between banks of shrubs and flowers to the residence at the other. What may be termed a broad rim of the shoe forms the garden, the centre and most prominent part being a meadow. No doubt the majority of persons in arranging the ground would have formed a lawn and planted Conifers on the high central site, and formed the meadow, if one were wanted, distant from the house where the ground is much lower, indeed not seen from the windows; but in that case it would have been utterly impossible to have secured such a variety of distinct features as have been obtained by taking advantage of the undulations of the ground and turning to account for an useful or ornamental purpose, or both, various portions, such as small strips easily formed by the natural irregularities in the boundary. The garden, then, is simply the fringe of the meadow round which we will pass from and to the residence, keeping the meadow with its splendid crop of hay on the right.

The flower and shrubbery border surrounding the plateau from which we start is margined with *Gentianellas*, which grow in the most satisfactory manner, and form a band of blue such as probably could not be equalled by any other plant. From here a walk curves to the right for about 100 yards with a smooth lawn 3 or 4 yards wide next the meadow on which are a few shrubs and flower beds. This is the only portion of lawn in the garden, but there are some grass verges. On the left hand side of the walk is a broad border of evergreens and flowers, in the front great masses of *Auriculas* and *Polyanthuses*, beyond *Pinks* of various kinds, *Irises*, *Delphiniums*, *Rockets*, *Columbines*, *Lilies*, *Poppies*, including the brilliant *Oriental Poppy*, and all sorts of other effective border flowers. But just as we enter this walk an opening in the shrubs on the left reveals a fernery, not a formal arrangement of stones, but a very miniature plantation with an undergrowth of Ferns in great variety; a walk surrounds this cool retreat, which cannot be entered without being enjoyed on a bright summer's day, for the shade is agreeable alike to the Ferns and their admirers. A little further along the walk an evergreen arch closely clipped affords in itself a pretty feature, and we instinctively enter and find a Raspberry and Currant garden—a long strip filched as it were from the back of the border—the appearance of which from the walk in front is not thereby marred in the slightest, while a valuable supply of fruit is obtained. Amongst the Raspberries is one of Mr. Weir's seedlings, which is bearing prodigiously. The Red Currants are extraordinarily fine, and the bushes all summer-

pruned, as Currant bushes ought to be. In the border fronting this enclosure a few fruit trees are dotted amongst the evergreen and flowering shrubs, and are beautiful alike in the spring and autumn, forming useful ornaments that might with advantage be seen more frequently in such positions. There two parallel walks, the one through the fruit strip and the other in the pleasure grounds, approach each other again at a vinery in which are excellent Grapes, the rich Muscat Champion bearing heavily, and a great and healthy assortment of plants—Ferns, Gloxinias, a few Orchids, and various, what Mr. Cannell calls "nick nacks;" also a group of a pure pink seedling Zonal Pelargonium of undoubted merit named by Mr. Weir Kate Greenaway. For floriferous habit, fine trusses, well-formed flowers, and clearness of colour this is not surpassed. If there are any individuals left who believe in the nearly exploded theory that Vines and plants cannot be grown in the same house they would be compelled to admit "very much the reverse" if they could spend a few minutes in this crowded little vinery at Weirleigh. But we must pass on.

The walk now proceeds close to the boundary, and is completely arched over with Laurels. Two rows were planted, and permitted to grow into trees. The naked stems, thousands of them, are in themselves striking, as they bend over in beautiful irregularity, forming the ribs of the verdant arch above. We arrive at a point where two walks converge—one, the principal, trending round the meadow and flanked with borders of fruit trees, shrubs, and flowers; the other a recommencement of the evergreen tunnel that proceeds along the boundary, but in this there is a break, another nook, with a mass of Ferns, and a seat where we sit and hear the nightingales sing and watch the rabbits play in a green dell below us.

The view from the seat facing the chief walk is very delightful—a sort of old-world view before bedding-out was invented and before shrubs were arranged in formal order and on mathematical principles. Lilacs and Mock Oranges, Guelder Roses and Cratæguses, Deutzias, Elders, and fruit trees are growing in the most free and pleasing manner imaginable, with here and there a choice deciduous tree such as a red or variegated Japanese Maple, a fern-leaved Beech or Lime, an elegant Birch, and a towering Thorn, *Cratægus fastigiata*; also conspicuous bushes of *Phlomis fruticosa*, and towards the front are large clumps of Bachelor's Button, glowing and fragrant masses of Mule and Alpine Pinks, imposing Pæonies in great and excellent variety, and German Irises in brilliant colours, comprising the late Mr. Salter's collection of upwards of a hundred varieties and many beautiful seedlings. As we proceed onwards the fruit trees sensibly increase in number, and certainly do not detract from the beauty of the borders, which finish with a clump of Gooseberry bushes near another vinery and resting place. The Vines are again in excellent health, bearing well, and there are several seedlings in pots, but we cannot linger here.

After a look back through the arcade of Laurels along the boundary we have an avenue of a different character before us—namely, of Apple trees. Planted along each side of the walk these form a bower of foliage with a charming canopy of blossom in spring and of fruit in the autumn. From an ornamental point of view nothing could be better nor more appropriate to the position, and the ground is profitably occupied withal, as the undergrowth of Gooseberries and Black Currants afford a surplus of fruit that realises several pounds annually. With this grove and the pyramid Pears and Plums amongst the shrubs fruit in a fruit year must be abundant at Weirleigh, while the trees are so disposed as to decidedly contribute to the attractiveness of the garden.

Between the Apple grove and the meadow on the right a narrow strip only a few yards wide is devoted to vegetables, and an underground vinery from which Grapes have been cut that have been honoured at South Kensington. Vegetables are grown, too, in spaces between the trees. To the left of the walk and quite hidden from it is another open space corresponding to the Currant and Raspberry strip above mentioned; this is the Strawberry garden—a large plantation of splendid plants covered with nets like a tent, under which the fruit can be secured in comfort, while the birds have to be content, or the reverse, by reconnoitering the position, for there is no admittance, the nets being secured to hooks in the border of bricks that surround the bed; hard bricks, it may be said, inserted on end, and the tops slanting from the walks form the neat and durable edgings to the shaded paths, grass verges fringing the open borders.

We have now traversed the arch of the horseshoe, and have arrived at the garden entrance from the road, and have only to pass up from this to the other heel of the shoe—the residence, and the circuit is complete. The banks along this 100 yards are very gay. Rhododendrons abound, Berberises are laden with golden blossoms, Strawberry Trees (*Arbutus*) are crowded with fruit; the Himalayan Lilac (*Syringa Emodi*) diffuse their powerful but not over-agreeable fragrance; white, rose, and crimson Pæonies; masses of a free and beautiful form of the Mule Pink, Pansies in variety, purple and white Rockets, *Lychnis Viscaria flore-pleno*, Trolliuses, Irises, Lilies, the rich blue *Anchusa italica*, *Papaver orientale*, brilliant; purple-topped Clary (*Salvia Horminum*), Pyrethrums, Campanulas, and Roses, including bushes of the crimson China Rose Fabvier, are repeated, and we arrive at the point from whence we started—the residence. Before us we see gorgeous heads of *Papaver bracteatum*, a golden pyramid of *Thuja elegantissima*, and a snowy bush of the variegated *Syringa (Philadelphus)* planted where the sun cannot reach

it, hence just in its right place. We are tired. Upwards of a mile of walks have been traversed, up hill and down, and some two miles of borders examined, rich, very rich in shrubs and flowers, only a few of which have been mentioned; but one is not there that ought to be seen, because this is its birthplace, the distinct striped Forget-me-not Weirleigh Surprise. Cannot some one send this pretty flower "home again?"

"Weirleigh must be a large place," some may perhaps mentally observe. No it is not large, but it is so arranged that no one can fail being surprised, after examining the contents of the garden, to learn that the extent of the grounds is only four acres, and two of them meadow! Mr. Weir has in addition a few acres of orchard, but of this we cannot speak; his garden is, or ought to be, his pride, as it exemplifies in a remarkable manner how much can be done in a small space, and how, by the exercise of thought and taste, the surroundings of a residence can be rendered to the greatest extent picturesque without an undue sacrifice of utility. Yes, Weirleigh is utilised ornamentally, and the owner and designer must be congratulated on his success, and "Thomas" his willing gardener commended for his share in keeping the grounds so neat and rendering them so enjoyable.—A VISITOR.

LARKSPURS

DELPHINIUM ELATUM and its many varieties, with other species, are well known in gardens, and the following are a few descriptive notes upon the best of the genus.

D. Barlowi is one of the better kinds; it has a splendid spike, and is one of those which rarely, if ever, mature seed, though it flowers abundantly. The beauty of this variety, I think, lies in its production of secondary flowering stems almost from the base, bearing well-formed, well-arranged, dark velvety blue flowers. Another variety of *elatum*, *D. Belladonna*, is one of the oldest and best. Like *D. Barlowi*, it seldom produces seed. It is of tall stature, and carries a most magnificent spike of the loveliest sky-blue flowers. *D. Nahamah* is one of the best of the more easily grown varieties; it is of good habit, and has a splendid spike of dark blue. One very good feature of this latter variety is coming true from seed. The three varieties just described are perhaps the best, but others are worthy of mention—namely, *D. Wheeleri*, *D. Madame Thibaut*, *D. Madame H. Jacatot*, and *D. ranunculiflorum*.

Among distinct species it is difficult to say which rank first. All I shall mention I consider good, and those who have a special taste for Delphiniums should not be contented with a collection of mere varieties of *D. elatum*, similar to the above-mentioned, but have some of the following. *D. nudicaule* is a species moderately well known, having been in cultivation a long time, but yet scarce. I fear it never will be plentiful in this country of slugs, wireworms, and unreliable winters. This dwarf scarlet Larkspur likes a free soil, something in the way of a sandy loam with a little peat in it. I do not think it is tender, as far as enduring the severity of our climate goes, providing these conditions can be found it. In my experience I have neither been fairly successful either in raising it from seed or pieces of the root, and have always had considerable difficulty in keeping a small slug from eating the young growths in spring before they appear above ground. If a weedy variety of this is received from any of the continental nurserymen it should at once be placed on the rubbish heap.

There is another scarlet species named *D. cardinale*, which may be a little more robust than the preceding, but on account of its comparatively small and sparsely produced flowers it can never command a place in any garden where *D. nudicaule* (true) is grown. *D. tricornis* is a bulbous species, like *D. nudicaule* and most of the North American Larkspurs, from whence it comes, and of a new type. I first became acquainted with it three years ago by having two plants from York. The plants were about 1 foot high, of short but robust habit, and flowers near upon opening. They bloomed well, and each successive year got stronger, but scarcely exceeded 1½ foot and did not increase the number of heads, so offering no opportunity of division.

D. Menziesii is another North American bulbous species. It is the dwarfest, neatest, and most brilliant little Delphinium I have seen. During its first year with us I fear it almost exhausted itself in flowering and maturing seed, for I never saw much of it afterwards, and eventually lost it.

The last, and perhaps the best of all which claim specific distinction, I have to recommend is *D. cashmirianum*. Its habit is quite distinct from any mentioned. It scarcely exceeds 2 feet in height, and one of the first things to be mentioned in connection with it is that it should not by any means be staked. Its beauty lies in its gracefully decumbent and umbellately branched flowering stems. The flowers individually are of good size, gracefully nodding, and of purple-blue colour, with a shining metallic lustre.

It comes freely from seed. Can anyone tell me where *D. triste* can be obtained? Is it lost?—M. J. B.

YORK FLORAL FÊTE.

JUNE 14TH, 15TH, AND 16TH.

FOR nearly a quarter of a century the annual Exhibitions in York have attracted visitors in thousands from the surrounding district, and each year the popularity of these extensive gatherings seems to increase. Exhibitors, too, enter the competition with even greater interest than formerly; and in all the most important of the very numerous classes provided, plants, flowers, fruit, or vegetables are generally represented in admirable condition. The Show held last week, the twenty-fourth, was no exception to the rule, and a progressive improvement in many departments was noticeable. In the eighty-eight classes there were eighty-seven exhibitors, as many as ten entering in some of the classes. Seven large tents were appropriated to the exhibits, a large central circular marquee containing the large specimen stove and greenhouse plants; and from this radiated six long tents containing respectively Pelargoniums, groups, fine-foliage plants, Ferns, Roses, and fruit. The most imposing portion of the Show was, as indeed is usual at York, the Pelargoniums, which were shown in superb condition and produced a brilliant effect. The fine-foliage plants were distinguished generally by their vigorous health, the Roses also with the hardy and bedding plants forming features of considerable interest. These were all arranged to good advantage, and Mr. Wilson earned well-merited praise by his judicious management.

Pelargoniums.—Undoubtedly these deserve the first position, taking the exhibits in the order of merit and abundance, for they have not been nearly so well represented elsewhere this season. A long central stage was occupied with the Show, Fancy, and Zonal varieties, the long side stages bearing the bronze and tricolor varieties that are invariably in grand condition at this Exhibition. The Fancy section was not very strong, but Mr. C. Rylance, Aughton, Ormskirk, gained the chief position with six well-grown specimens of Henry Bailey, Roi des Fantaisies, Sarah Turner, Lucy and Juliet, neatly trained with flowers of good size and bright colours. Mr. H. May, Hope Nurseries, Bedale, followed with smaller plants but bright. In the class for three plants Mr. Eastwood, gardener to F. W. Tetley, Esq., Fox Hill, Weetwood, Leeds, secured the leading position with fairly good specimens, the others in that class being rather poor. The greatest feature, however, were the Show Pelargoniums, Messrs. Lazenby & Sons, Clarence Nursery, York, carrying off chief honours with magnificent specimens, well flowered, healthy, and of good size, some of the best being Rebecca, Lavinia, Duchess of Edinburgh, Aughton Favourite, Exhibitor, Brigantine, Duchesse de Morny, and Triomphe de St. Mande. Mr. C. Rylance took the second place with a creditable collection, the flowers being very large, of excellent form and substance, but less numerous than in the previous collections. Messrs. May and Eastwood were placed equal seconds in the same class for moderately fresh and bright plants. In the smaller class Mr. R. Gawthorpe, gardener to Miss Steward, Bishopthorpe; Mr. Olroyd, gardener to J. T. Hingston, Esq., North Riding Asylum, Clifton; and Mr. Eastwood were the prizewinners in that order, the first-named having Bridal Bouquet, Desdemona, Blue Bell, and Queen Bess in excellent condition. Zonal varieties produced a most brilliant effect, so bright indeed that it was almost too dazzling, something being needed as a foil. For six specimens Mr. Winterbourne, gardener to T. Simpson, Esq., Bardon Hill, Weetwood, Leeds, was adjudged the chief position for even plants of Florence Durand, Lucius, Grand Duke, Cherry Cheek, La Dame Blanche, and Rose Rendatler. Mr. Gawthorpe took the second place with similar examples; Major Davison, Fulford House, York, being third. In the larger class for twelve plants Messrs. Pybus & Son, Monkton Moor, York, took the lead with profusely flowered specimens, Warrior, Dr. Hogg, George Peabody, and Mrs. Chandler being admirably represented; Messrs. Eastwood, Winterbourne, and Olroyd being the other prizetakers, all showing well. The bronze and tricolor varieties, as already noted, were both abundant and good, most of the latter being richly coloured. Mr. G. Clarke, gardener to Miss Wharton, Burton Grange, York; Mr. Hemming, gardener to J. Cholmley, Esq., Newton Hall, Rillington, York; and Messrs. Jackson & Co., Cross Lane, Bedale, were the principal exhibitors and prizetakers.

Stove and Greenhouse Plants.—One of the principal classes in the schedule was that for ten stove and greenhouse plants in bloom and six fine-foliage plants, the prizes being £20, £14, and £8. Though only two collections were staged both were of good quality; but the leading plants from Mr. Letts, gardener to the Earl of Zetland, Upleatham, were extremely fine, and deservedly attracted much admiration. They were all in surprising health, fresh, evenly trained, and well flowered, some of the most noteworthy being the following:—*Draecophyllum gracile* 5 feet in diameter, even, and superbly flowered, certainly one of the best plants in the Show; *Phœnocomia prolifera*, of similar size and equally good condition; *Allamanda grandiflora*, a vigorous specimen, bearing a large number of its bright yellow flowers; *Croton majesticus*, richly coloured; *Stephanotis floribunda*; *Croton Weismanni*, 8 or 9 feet high and finely coloured; *Ixora Williamsi*, *Erica insignis*, and *Anthurium Schertzerianum* with over four dozen large deeply coloured spathes. This collection contained some of the

finest specimens that have been shown this year, and they most worthily deserved the position accorded them. Mrs. E. Cole & Sons, Withington, Manchester, took the second place with healthy specimens, the Palms and Azaleas being especially noteworthy for their size, but the others were not remarkably good.

For six specimens Mr. Letts was again the most successful exhibitor, having neat, fresh, healthy plants; *Ixora Dixiana*, *Clerodendron Balfourianum*, *Allamanda grandiflora*, *Anthurium Schertzerianum* with fifty spathes, and *Erica Shannoni* *Turnbulli* being the best. Mr. E. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, followed with smaller plants, *Erica Cavendishiana* being in very fine condition. The amateurs' class for three specimens was fairly well filled, Mr. Noble, gardener to T. Fry, Esq., Darlington, leading; followed by Mr. H. Wright, gardener to G. Talbot, Esq., Southfield, Burley, and Mr. Winterbourne.

Orchids.—The display of Orchids, though far from equalling that at Manchester recently, was yet very attractive, and several good specimens were staged. Mr. J. Hill, gardener to G. Hardy, Esq., Timperley, Manchester, gained chief honours for six plants, having *Anguloa Clowesii* with fourteen flowers, *Odontoglossum Alexandræ* with three fine spikes, *Cattleya Mendeli*, *Cattleya Mossiæ*, *Vanda suavis*, and *Odontoglossum vexillarium*, being very healthy and well flowered. Mr. Mitchell, gardener to Dr. Ainsworth, Cliff Point, Broughton, Manchester, followed closely, staging *Odontoglossum Alexandræ*, *Vanda tricolor* with three fine spikes, and *Oncidium Marshallianum*, being excellent specimens. Mr. Hayward, gardener to Capt. Hincks, Thirsk, was a good third; Mr. Bonsall, gardener to J. Rhodes, Esq., being fourth, both showing small but healthy plants. In the class for three plants the competition was keen, seven collections being staged, mostly of nearly equal merit. R. P. Percival, Esq., West Cliff Road, Birkdale, Southport, was accorded the chief prize for specimens of *Odontoglossum*, 4 feet in diameter, with scores of flowers; *Cypripedium barbatum* nigrum with sixty blooms, and *Cattleya Mossiæ* of considerable size and well flowered. Mr. Hill was second with well-grown plants of *Cypripedium Lawrencianum*, *Dendrobium Jamesianum*, and *Odontoglossum vexillarium*. Mr. Rollinson, gardener to W. Bateman, Esq., Harrogate, followed, the best plant being *Lælia purpurata*; and Mr. Mitchell secured the fourth position, having an excellent example of *Oncidium macranthum* amongst others. For a single specimen there were ten entries, the competition causing the Judges some little difficulty in determining the awards. Mr. Percival was first with *Cattleya Mossiæ*, 4 feet in diameter; Mr. Eastwood had second honours for a good plant of *Aerides Fieldingi* with three long spikes, and Mr. Hill was third with *Vanda tricolor* *superba* bearing four fine spikes.

Roses.—A considerable portion of a large tent was occupied with the plants staged in the classes devoted to Roses; the blooms were also numerous, the side stages being filled with stands, and the centre staged with plants. Amongst the nurserymen in the former section the chief prizetakers were Messrs. Pybus & Son, H. May, and W. Jackson & Co., who had very vigorous plants with excellent foliage; but though in a few cases the blooms were abundant and fine, the majority were not quite so freely flowered as might be desirable, though the general effect produced by the plants as arranged in the centre of the tent was very bright and pleasing. The amateurs also showed well, the principal being J. T. Hingston, Esq., Miss Steward, W. W. Gatliff, Esq., Mr. Eastwood, and Mr. Gowthorpe. The varieties best represented were *Marquise de Castellane*, *Juno*, *Dupuy Jamin*, *François Michelin*, *Peach Blossom*, *Marie Baumann*, *Madame Lacharme*, *Boule de Neige*, and *Jean Cherpin*.

The Rose blooms were generally of very fair quality, particularly in the collections staged by Messrs. Paul & Son, Cheshunt, who had the premier honours for thirty-six and twenty-four blooms respectively. These were distinguished by their fresh bright colours, good size, and substance, very creditable to the firm. Numerous varieties were represented, including all the best of those in general cultivation with several of the new forms. Messrs. H. May and Jackson and Co. were the other prizewinners in the nurserymen's classes, both having very satisfactory collections, the blooms clean and of good varieties. The amateurs also were well to the fore, E. R. Whitwell, Esq., Barton Hall, Darlington; Miss Steward; Mr. J. Oldroyd, gardener to Mrs. Grimston, Cranswick; and Mr. Eastwood were the chief exhibitors and prizewinners. A fine collection of *Teas* and *Noisettes* from the first-named was especially noteworthy, the blooms large and of excellent substance.

Fine-foliage Plants.—As well as the special classes for these, such as the Ferns and Coleuses, which added greatly to the extent of the Exhibition and the beauty of the display. For eight fine-foliage plants Mr. Letts won the premier honours with large vigorous specimens. *Encephalartos Vroomii* was extremely fine, and such a grand example is rarely seen; *Croton Queen Victoria*, *Dasylium acrotrichum*, *Croton Johannis*, and *Gleichenia rupestris glaucescens* were similarly fine. Mrs. Cole & Sons followed closely, having *Cocos Weddelliana*, *Croton Disraeli*, and *Cycas revolutus* in good condition. Mr. Tudgey gained the third place with healthy specimens. Mr. McIntyre, gardener to Mrs. G. Pease, Woodside, Darlington, and Mr. Winterbourne, were the prizetakers in the amateurs' class for four plants, their contributions being fairly creditable, and earning them the first and second prizes respectively.

Ferns.—Invariably at exhibitions of such magnitude as that at York Ferns constitute an important portion of the display, and when

judiciously arranged they afford a most agreeable foil to the flowering plants, softening the brilliancy of colour which is apt to displease if not accompanied by sufficient green foliage to break and diversify the effect. Several classes were devoted to these both for hardy and exotic forms, each section being well represented. For eight exotic Ferns Messrs. Letts, Cole & Sons, Bonsall, and Lyon were the successful exhibitors; but although the specimens were large and in fair condition, those staged in the class for four plants were rather more satisfactory in a cultural point of view. Mr. Noble's leading collection was particularly good; *Goniophlebium subauriculatum*, *Davallia Mooreana*, *Gleichenia Mendeli*, and *G. speluncæ* being vigorous specimens of moderate size, but as fresh and healthy as could be desired. Mr. Berry, gardener to W. Dove, Esq., Crown Cottage, York, who followed, also had some well-grown plants, *Gleichenia rupestris glaucescens* 5 feet in diameter being grandly shown. Mr. Nash, gardener to Capt. Starkey, Tang Hall, York, was a good third, having *Pteris argyrea* and *Todea superba* in admirable form. Hardy and British Ferns were staged in excellent condition by Messrs. W. R. Robinson, Lowther Street, York, A. Scott, C. Ryland, and J. Rodwell, Burton Lane, who secured the principal prizes in all the classes. Messrs. Scott, Berry, and Bonsall contributed collections of *Selaginellas* mostly healthy, but the plants were in rather large pans, and in several cases the nomenclature was far from satisfactory.

Coleuses.—Large and richly coloured specimens were staged in the class for six plants, and though few of the newer and greatly improved varieties were represented, some of the most distinct amongst the older forms were shown to the best advantage. Mr. Young, gardener to T. F. Wood, Esq., Munthorpe, was placed at the head of the class with vigorous specimens 5 feet in diameter, *Royalty* and *Beauty* of St. John's Wood being the most noteworthy varieties. Mr. R. McIntosh was accorded the second position with tall pyramidal plants fairly coloured, being rather poor varieties; Messrs. Lazenby and Sons securing the third prize with plants very dissimilar in training to the others, being much smaller and flatter, but in the opinion of many these were really the most useful, being better adapted for general decorative purposes.

Cut Flowers.—In addition to the Rose blooms already noticed numerous choice miscellaneous collections of cut flowers were contributed, and together with the bouquets and ornamental stands constituted an attractive feature. The principal class was that for twelve bunches of flowers, in which Mr. McIndoe won premier honours with choice and beautiful specimens, including *Phalanopsis amabilis*, *Ixora coccinea superba*, *Erica ventricosa grandiflora*, *Tabernaemontana coronaria flore-pleno*, *Allamanda Wardleana*, *Odontoglossum Roezli*, the rare and curious *Ataccia cristata*, and the bright *Anthurium Andreanum*. Seldom is so fine a collection of blooms as this seen at exhibitions, and they received much attention from the visitors. Mrs. E. Cole & Sons also showed extremely well in the same class, securing the second prize with fine blooms that would have been entitled to as high a position as the preceding had the collection been a little more diversified. For instance, four trusses of *Ixoras* were rather too many for a small collection, though they were very handsome, representing *I. coccinea*, *I. Prince of Orange*, *I. Fraseri*, and *I. Williamsi*. *Erica ventricosa Bothwelli* and *Allamanda grandiflora* were also in good condition. Mr. C. W. Baynes, gardener to R. Dickinson, Esq., Shotley House, Durham, followed with a bright selection. In the class for six bunches Messrs. McIndoe and F. Faulkner were the prizewinners in that order, the former having a similar collection to that in the larger class, the latter showing several fine Orchids, *Sobralia macrantha* being especially noteworthy. The bouquets were not of remarkable quality, no very striking originality of taste being displayed in the arrangements. The stands of flowers, too, were generally of an ordinary character.

The groups which have been already mentioned as collectively forming an extensive and attractive display were not individually of remarkable quality, too much sameness prevailing in the styles, the plants in the majority being crowded, consequently having a rather heavy appearance. In the leading groups a little more freedom was noticeable, but there was not one that could be considered a really desirable model. The hardy plants from Messrs. W. H. Rodwell, York, and Simpson of Selby, were praiseworthy, as were also the bedding plants from Messrs. Simpson & Son, Heworth, Simpson of Selby, and Lazenby & Sons. *Fuchsias*, *Calceolarias*, and *Gloxinias* were also contributed by several exhibitors, the first and last-named being very well shown.

Miscellaneous exhibits not for competition were not numerous, but three noteworthy groups were staged, which were highly commended. Mr. B. S. Williams, Upper Holloway, London, had a large collection of new and choice stove and greenhouse plants. Messrs. R. Smith and Co., Worcester, had collections of *Pyrethrums*, *Pæonies*, *Spanish Irises*, and hardy plants that were greatly admired by the visitors; and Messrs. Downie & Laird, Edinburgh, sent stands of *Fancy Pansies* and *Violas*, including several new varieties, the following being honoured with first-class certificates:—

Pansy May Tate.—A Fancy variety, with large even well-formed flowers, the ground colour deep rich maroon, bordered with a clearly defined bright yellow band. **L. Dawson.**—Also a Fancy variety, the upper petals purplish claret, the lower deep violet purple margined with creamy white; flowers large and symmetrical. **Ruby.**—Another of the same section; three lower petals reddish black edged with yellow, the upper being purple margined with creamy white.

Viola Duchess of Albany.—A beautiful variety, with large pure white flowers having a small bright yellow centre. **Duke of Albany.**—Deep violet purple with a yellow eye, very handsome, and of good form. **Countess of Hopetown.**—Colour delicate, bright blue shading to white near the margin, eye deep yellow. Very distinct.

Fruit.—At some previous shows the entries in these classes have been more numerous than the one now being noted, but the quality was most satisfactory in the leading collections. For ten sorts of fruit Mr. McIndoe, gardener to Sir J. Pease, Bart., M.P., won chief honours with well-finished bunches of Black Hamburgh and Muscat of Alexandria Grapes, and Grosse Mignonne and Barrington Peaches; Pit-maston Nectarines, McIndoe's Premier Melon finely netted, Best of All Melon, and well-ripened Brown Turkey Figs, were the chief dishes, and all were highly creditable to the exhibitor, who also secured honours in several other classes. Mr. A. Mann, gardener to Mrs. Hornsby, St. Vincent's, Grantham, gained the second position with good samples of Black Hamburgh Grapes, Golden Drop Plums, and Brown Turkey Figs remarkably well ripened. For six sorts Mr. McIndoe was again in the first place with similar quality fruit to that in the preceding collection, the best being a fine Queen Pine Apple. Mr. F. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, gained second honours, having good Black Hamburgh Grapes, fine James Veitch Strawberries, and a well-ripened Golden Queen Melon amongst others of similar quality. Mr. J. Clayton, gardener to J. Fielden, Esq., Grimston Park, Tadcaster, was a close third, his Madresfield Court Grapes, A Bec Peaches, and Best of All Melon being noteworthy dishes. Messrs. W. Wallis, gardener to Sir H. M. Thompson, Bart., and R. Westcott, gardener to the Duke of Cleveland, Raby Castle, Darlington, were respectively first and second with collections of four sorts, both showing fairly creditable samples.

Grapes were not extensively represented, but most of those staged were well coloured, and in several cases the berries and bunches were large. Black Grapes were much better than the white varieties, and in the class for one dish of the former there were ten entries—a keen and interesting competition. The Judges selected for premier honours a bunch of Black Hamburgs of moderate size but admirably coloured, from Mr. Wallis; the second prize being accorded to Mr. J. P. Leadbetter, gardener to Admiral the Hon. O. Duncombe, Kilnwick Percy, Pocklington, for a particularly handsome even bunch, the fine berries indicating excellent culture, but the upper portion of the bunch was slightly deficient in colour, which doubtless determined the second-rate position of this exhibit, as in other respects the bunch was the finest shown. Mr. R. Westcott took the third place with a fairly well-coloured bunch of good size. The best white Grapes were shown by Mr. Clayton, who gained the chief prize in that class, but all the others were of indifferent quality.

Peaches were mostly large, but in few cases thoroughly ripened. Nectarines were more satisfactory: Messrs. Clarke, J. Lyon, and Clayton carrying off the prizes, the first-named having Elruge in excellent condition. Melons were numerous and generally good. In the class for scarlet-fleshed varieties Mr. McIndoe led with a beautiful specimen of his Scarlet Premier; Mr. Swanwick taking a similar position in the class for green-fleshed varieties with Best of All, large, fairly netted, and well coloured.

Vegetables.—Half a dozen collections of vegetables were staged in the class for a tray of ten distinct varieties, the first and second prizes of £3 and £2 being offered by Messrs. Backhouse & Sons. Mr. McIndoe was deservedly accorded the leading prize for a highly satisfactory collection of clean neat vegetables, comprising Carters' Telephone and Culverwell's Telegraph Peas very fine, Verdant Green Cucumbers, Stamfordian Tomatoes, Major Clarke's Celery, and Cauliflowers. Mr. J. Hemming, gardener to J. Cholmley, Esq., York, followed closely with well-grown specimens, extra prizes being awarded to Mr. H. Weble, gardener to T. H. M. Sutton, Esq., Notts; Mr. Kirk, York; and Mr. W. Swanley, gardener to G. W. Elliott, Esq., M.P., Northumberland.

SCIADOCALYX LUCIANA.

THIS Tydea-like plant is useful for stove decoration on account of its blooming during winter, and for that purpose should be grown; in fact, its free disposition to bloom at any season renders it useful for that purpose all the year round. It is not common in gardens, but is quite as attractive when in flower as any Tydea. The contrast between its light green foliage and crimson hairy stems gives it a pleasing appearance, and adds materially to its beauty when out of flower. The flowers spring from the axils of the leaves, and as a rule there are about three on each stem. The flowerstalks and outer portion of the corolla are the same colour as the stem of the plant, while the inner surface of the corolla is beautifully spotted with light and dark markings on a crimson ground. Few plants are more easily cultivated, or more readily and rapidly propagated. It should never be subjected to a drying-off system as is practised with some varieties of Tydeas, for it is evergreen and forms no tubers.

The best mode of propagation is to take the young shoots from the base, which root quickly in heat, and soon grow rapidly into good plants. Tall specimens can also be cut in lengths of two

joints and inserted in small pots, when nine out of ten will root and form good plants. A good plan is to insert three in a pot, and then when ready transfer them into 5 or 6-inch pots, which is large enough for them. They should not be pinched, but allowed to grow upright, and when about 6 to 8 inches high will commence flowering, continuing until fully 3 feet high. They are most useful when comparatively dwarf, and to keep them in this condition constant propagation is necessary. While growing abundance of water should be given, and occasionally weak liquid manure after the pots are full of roots. Any light fibry soil is suitable.—SCIENTIA.

A WEEK IN BELGIUM.—GHENT.

[THE SIXTH DAY—Continued.]

It will be perceived that this was a busy day, and only a very short time could be spent in each nursery—just sufficient to obtain a glance at the main features of the different establishments. No horticulturist, especially if paying a visit to Ghent for the first time, would think of passing the great establishment at Gendbrugge—Van Houtte's; but, as has been previously mentioned, arriving on the day of a great calamity, the death of the then head of the business, Madame Van Houtte, two minutes with the present head of the firm, M. Louis Van Houtte, and ten with the experienced foreman, M. Van Eechaute, who is admitted to be one of the best practical horticulturists in Belgium, was all that could be expected, and I passed on to accept a special invitation and spend

HALF AN HOUR AT D'HAENE'S.

This is within gunshot of the Royal nursery just mentioned, and was formerly the establishment of M. Dallière. M. D'Haene, apart from being young and energetic, is unquestionably a skilled horticulturist, and his nursery, alike by the order that prevails and the quality of its contents, is highly worthy of inspection. The glass structures are extensive, in good order, and crowded with those plants that are in the greatest demand by European nurserymen. This is emphatically a plant manufactory, for although there are many good specimens that secure honours at exhibitions, yet the feature of the nursery consists in raising great numbers of staple decorative plants and disposing of them in large quantities in a comparatively small state.

The ranges of glass structures in Belgian nurseries are very similar in character—plain and useful—and similarly occupied—crowded with Palms, one house being devoted often to a kind. Of those that are in popular demand, such as *Phoenix reclinata* and others, *Latantias*, *Areca*s, and *Cocoses*, the stock here comprises fully thirty thousand plants. But there is at least one large structure in this nursery different from the stereotyped form. It is somewhat fancifully arranged in a series of beds, the narrow paths curving round them between brick walls, which support the soil on which the plants are placed. Several of these are fine specimens, and the paths can only be traversed by stooping under the great arching Palm leaves. This house is in a certain degree picturesque, but the others are plain span-roofs, with a path down the centre and beds on each side—the most cheap and useful structures for plants either for nurseries or private gardens.

One very large house is occupied with a great collection of Bromeliaceous plants, including many fine specimens that occupy honourable positions at the leading shows. Another is filled with Ferns, there being a very fine stock of *Todea africana*, which is raised in thousands from spores from a large old specimen that produces them in any quantity required—a very useful plant, and prized accordingly.

Noticeable was a recent and large importation from Brazil of *Areca lutescens*—fine plants with yellow stems, mostly destined for the English market. They were sent in rough boxes 4 or 5 feet long, about 2 feet wide, and 8 inches deep, the plants being packed upright and laced down with leaves of *Dracena terminalis*, the tops of the plants protected with framework. One house was devoted to raising Palms from seed, which were springing up as thick as grass, the seeds being covered with moss and kept moist. The germination of a new *Cocos* was singular—indeed unique, as two plants were springing almost from every seed, a circumstance that M. D'Haene had never before seen. Of the elegant Palm *Geonoma gracilis* there was a large and fine stock, and roughly-formed pits or frames were filled with *Cocoses* and *Latantias*. Similar frames were crowded with small *Camellias*, but *Azaleas* were planted in beds, also was *Choisia ternata* in thousands, and the elegant *Casuarina ericoides*.

On a series of dung beds in the open air some very fine *Dracenas* and *Ficus*es were growing. The plants appeared to be in pots, plunged over the rims in light soil, and were growing with great luxuriance. Evidently the position suited them exactly, and more healthy plants could scarcely be imagined. *Begonias*, *Cordylines*, and *Aralias* are also largely and well grown, and various other plants that it is not necessary to enumerate. Healthiness of stock, orderly arrangement, and general neatness characterise the establishment, and the proprietor must be congratulated on its admirable condition.

Contiguous is the nursery of M. Dallière, but the shades of evening compelled us to pass it; but no one could pass his excellent plants as seen at the Antwerp and Brussels exhibitions without admiration. Not far distant is M. De Smet's establishment, famed for its succulents

and many other things that are good; and almost adjoining is "Vershaefft's," now in the proprietorship of the De Smet family, but a visit to these had to be postponed, well as they are worthy of inspection. My sixth day is ended, the seventh—but not Sunday—being devoted to a call on M. Pynaert Van Geert and home again; hence with one more letter I must close my notes of a pleasant sojourn amongst friends whose kindness is not likely to be soon forgotten by those who have the privilege of experiencing it during the approaching holiday season.—J. WRIGHT.

HESPERIS MATRONALIS ALBA PLENA.

Now that the sweet *Narcissus poeticus flore-pleno* is past its best in the borders for cutting, the above is just coming into full flower. This is a beautiful old border plant, and should be grown largely where a good supply of sweet fragrant flowers is required. It looks well anywhere, either in a vase of cut flowers or when displaying its branched spikes in the herbaceous border, either single plants or in good clumps. My plants were divided last year to increase the stock, and as many shoots were taken and rooted as possible, so that they are only carrying from one to six flower spikes each; but a few good clumps with twenty or thirty spikes are grand in the front of shrubberies. The double purple form is equally useful. The true old double white that we used to see in cottage gardens years ago appears to be very scarce now and difficult to obtain. I have already had two forms of double white for the old variety, and both of them are inferior to that, one having pure white very double small flowers, sparingly produced at the top of the shoot, a bad grower, and difficult to increase, and in this last particular resembles the true old kind. The other is a robust grower, and throws up good bold branched spikes about 18 inches high, with rather loose double or semi-double flowers, which individually are large, with a tinge of greenish white in the centre, and very slightly shaded with pink. This variety is, however, worth growing, and can readily be obtained in quantity.—W. B.

MEAD'S PATENT REPLEX GARDEN SEAT AND TABLE.

MR. WARHURST of Highgate Road, London, in submitting the annexed figures, requests us to direct attention to this very useful



Fig. 100.—Seat with awning.

and convenient garden appliance, which was included in his collection and also in the collections of other exhibitors at the late Show at South Kensington. In the circular our correspondent has sent to us it is truthfully stated that "combinations are often more ingenious than serviceable. An article contrived to serve two purposes often misses both. This is not the case with the garden seat brought out by Mr. Samuel Mead, which, though a most comfortable seat, with sloping back and with arms, can by a movement of the simplest character be converted into a seat with a steady and substantial table in front of it."

We examined the seats at the Show and found them fulfil all all that is claimed for them.

Fig. 100 represents the seat with an awning attached, this of course being readily removeable; fig. 101 shows the seat and table, an extra back being made for the seat for use if required when the ordinary back is turned down to form the table. A box is attached beneath the seat for holding garden tools, tennis balls, or whatever small articles may be required in the garden.

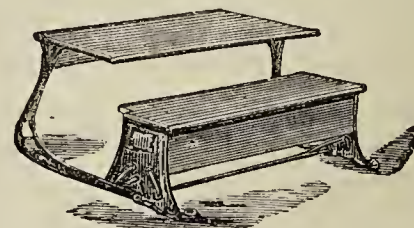


Fig. 101.—Seat and table.

HUMEA ELEGANS v. VINES.

I THINK I have discovered the secret of the failure of my Black Prince Vines as previously referred to. I do not think there was

anything wrong with the roots for various reasons. The Vines succeeded very well every way last year; then as soon as shoots and buds died this spring fresh buds were immediately formed, this process being repeated three or four times. When at length the shoots ceased to die luxuriant growth followed at once, and one of the Vines is bearing a good crop of fruit. My gardener thought some atmospheric cause was doing the mischief, especially as slight signs of damage were visible in the foliage of other Vines, and still more on some French Beans in the same house. There were in the house four plants of *Humea elegans*, which filled it with their fragrance, the scent being almost overpowering when the house was opened in the morning. He thought that possibly the pungent aroma of the *Humea* operating upon the tender growth of the Vines when the house was closed at night had caused the injury, so he removed the *Humeas*. In a few days a perceptible improvement was noticed in the Vines, no more injury appeared in other foliage, and the French Beans also grew strong and healthy.

I have allowed several weeks to pass to be sure the evil is gone, and have no doubt but it is. The Vines have overcome the disease gradually, improving first in the lower parts and then upwards. I never heard of *Humeas* being injurious to other plants, but feel sure in this case that they have robbed me of good crops of Grapes, besides nearly killing the Vines. Why the four Black Princes should be affected and the twenty-eight other Vines remain uninjured I cannot say, but so it is.—C. E.



THE preparations for the entertainment of the BELGIAN HORTICULTURISTS, who are to visit this country on the 24th inst., have now been settled, and are as follows:—On Monday the 25th they will be conducted to see some of the market flower-growing establishments in Kent, and thereafter accept Mr. Cannell's private invitation to visit his grounds at Swanley. On Tuesday they will be entertained at luncheon in the garden at South Kensington on the joint invitation of the Royal Horticultural and the Pelargonium Society. Lord Aberdare, President of the Royal Horticultural Society, is expected to take the chair. In the evening they have received an invitation to dine with Mr. Veitch at Chelsea. On Wednesday they will visit Frogmore and Cliveden. Thursday will be spent in visiting some of the great market gardens about Isleworth and Hounslow, and in the evening they will be entertained at the banquet of the Gardeners' Royal Benevolent Institution. Friday will be devoted to visiting the various nurseries, and Saturday they will spend at Kew and Chiswick. Anyone desirous of joining in giving a welcome to our Belgian brethren may do so by being present at the luncheon at South Kensington on Tuesday the 26th, tickets of admission to which, price one guinea, may be obtained from Dr. Masters, 47, Wellington Street, Strand, or to Mr. Shirley Hibberd, 15, Brownwood Park, N.

— THE Committee of the NATIONAL ROSE SOCIETY has decided after anxious deliberation that it will be better to hold their Metropolitan Show in the conservatory and arcades of the Royal Horticultural Society, instead of either the large tent or the long narrow one. It is believed this will be more convenient to exhibitors, and certainly better for the Roses. They have also determined to allow boxes to be brought in up to half-past ten instead of ten, as some of the morning trains run awkwardly for exhibitors; but at that hour the doors will be closed, and on no pretence whatever will any boxes be admitted after that hour. It has been arranged that a *déjeuner* shall take place in the School of Cookery at half-past one on the day of the Show, to which members and their friends (ladies as well as gentlemen) will be admitted. Everything promises a most successful meeting.

— IN addition to the ROSE SHOW FIXTURES on page 445 of our issue of the 1st inst. are the following:—Sittingbourne, June 23rd; Norwich, June 29th; Eltham, July 6th; West Kent, July 8th; Manchester, July 14th; and Sutton Coldfield, July 19th.

— MR. TAYLOR writes as follows from Longleat:—"I am sorry to have to report the presence of our old enemy, the POTATO DISEASE. It has shown itself in several places in this district within the last week; and as, owing to the cold weather lately experienced, the late Potatoes have as yet formed no tubers, we are almost helpless before it. I have a good patch of the old Ashleaf forward enough to save for seed, which I shall store away immediately. None of the so-called improved Ashleaves are sufficiently forward for this yet, and must take their chance, which, according to present appearances, is a bad one."

— MR. WARE has sent us from Tottenham a quartett of GARDEN PINKS, which are worthy of a place in all hardy flower borders. Lord Lyons is large, smooth, rich deep pink in colour, and very fragrant, the flowers being produced with great freedom. Ascot is an upright grower, colour delicate pink, with maroon centre, free; and Mrs. Sinkins is the finest of all the white Pinks, being very large, very free, and very sweet. Ware's Clove Pink is a small much-fringed flower, deep pink in colour, and powerfully and deliciously fragrant. Both for producing an excellent effect in the garden and for affording a supply of acceptable cut flowers these useful Pinks should be grown everywhere.

— MR. HARDING has sent us flowers of ORCHIS MACULATA that were found in a wood near Peterborough abundantly, and observes—"They all appear to belong to the same species, but yet each spike has a different shade of colour, and some different markings. The leaves of all are spotted like those sent. It shows that some of our British Orchids vary the same as many of the beautiful exotic species, notably *Odontoglossum crispum*." The box contained nine spikes, no two of them alike, all attractive, and some beautifully marked.

— "D., Deal," writes to us as follows in reference to the ROSE MABEL MORRISON:—"At the Horticultural Club dinner on Tuesday last Mr. Cranston mentioned that Mr. Bennett had shown him at South Kensington a bloom of this Rose which was perfectly double, at the same time saying that he had never seen it other than semi-double. Curiously enough, when I reached home I found a beautifully double white Rose on my chimney-piece which I at first took to be Madame Lacharme, but found it to be Mabel Morrison. I therefore sent it to Mr. Cranston, who writes me—'The bloom you sent me is very beautiful; we can never grow it like that here. The one shown me by Mr. Bennett was even more double.' Mine was cut from a plant on the seedling Briar. Can it be, then, taking these two together, that we are going to have a Mabel Morrison year?"

— THERE is now a rich, varied, and extensive display of ORCHIDS IN MESSRS. VEITCH'S NURSERY at Chelsea. Particularly striking are the Cattleyas, of which a great number are in full beauty, and the varieties of both *C. Mendeli* and *C. Mossiae* are numerous and fine, not one inferior, and several superb. Most attractive also are the varieties of *Lælia purpurata*, the plants of which are flowering with great freedom, and remarkable for the richness with purity of the flowers. Vandas are producing spikes large and numerous, and many elegant *Saccolabiums* add to the beauty of the house. There is a great display of *Odontoglossums* in all the leading forms, some varieties of *O. Alexandræ* and *O. vexillarium* being of commanding excellence. *Dendrobiums Dalhousianum*, *suavissimum*, and others with grand sprays of *Phalænopsis* contribute to the beauty of

this great collection—greater by far, it may be added, than visitors can appreciate; for there are dozens of houses crowded with thousands of plants which are not ordinarily seen by the public, but by the cultivator their health and cleanliness are scarcely less admired than the flowering specimens that render the structures in which they are kept so richly imposing.

— SCARCELY less beautiful than the Orchids is the collection of GLOXINIAS in the same establishment. The progress that has been made in these plants during the last few years is very great, especially in richness of colour. Crimsons more or less bright have long been produced, but here we have scarlets almost as bright as Pelargoniums, and of velvety texture, such as is represented in the fine variety Radiance. Some new colours, purplish maroons, are intensely rich, and the spotted varieties are most chaste. Pure whites are also represented, the finest, Purity, often producing seven and eight-lobed flowers instead of the normal five lobes. Some of the best flowers are now fading, the plants having been in full beauty for upwards of two months. The collection is quite unique, and many of the varieties unequalled.

— AMONG other noteworthy plants in the nursery are ANTHURIUMS, including the magnificent-foliaged *A. Veitchii* and *A. Warroqueanum*, the curious *A. Andreanum*, which is producing numerous large brilliant spathes, and the grand *A. Schertzerianum Wardii*. *Jasminum gracillimum* is flowering as usual, its trusses of elegant flowers ever unfolding. The striking *Leea superba* is being increased largely on the assumption that every stove must eventually contain a plant or plants. A large house of Tuberous Begonias has a brilliant effect. A miniature forest of seedling greenhouse Rhododendrons is being watched with interest, especially since the remarkable double variety *balsamæ*—flora expanded, the flowers of which are rich, smooth, and perfect in form. The stock of *Lavatera arborea variegata* appears to have found its way to this nursery; it is a striking plant that was recently certificated. The above are only a few plants that attract attention now, and which afford gratification to the constant stream of visitors.

— AT the Monthly Meeting of the NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY, held on the 12th inst., Mr. C. E. Pearson of Chilwell read a paper on the Pelargonium and its culture. The following resolution was passed, proposed by J. Booth, Esq., and seconded by Mr. Pendry—"That a cordial vote of thanks be awarded to Mr. Pearson for his excellent essay." Carried unanimously. Votes of thanks were also passed to Messrs. German, Pendry, Swanwick, &c., for their exhibits on the occasion, and to the Chairman for presiding.

— "AMATEUR, Cirencester," referring to the letter of "INQUIRER" on FERTILISERS AND POTATOES (page 489), observes:—"Your correspondent takes my remarks on this subject too seriously, and sees a rebuff where none was intended. I have carefully looked over my remarks on page 470, and fail to see any want of courtesy. It is true I do not agree with "INQUIRER" about the formula of Mr. Jamieson, but anyone who brings forward a theory must be prepared to hear the opinions of others upon it; indeed I may go further and say I think it would be an unfortunate thing for the readers of the Journal if they only heard one side of a question. I have no time to refer more particularly to the formula at present, but may perhaps recur to it on another occasion."

— THE PRIZES FOR VEGETABLES offered by Messrs. Webb and Sons, Wordsley, Stourbridge, at Oxford on the 10th inst., we are informed, produced a strong competition, and the exhibits were extremely good, consisting of Webb's Early Mammoth Cauliflower, Perpetual Bearer Cucumber, New Kinver Gem Pea, Vic-

toria Dwarf Bean, and Improved Ashleaf Potato. The first prize, value £3 3s., was awarded to S. P. Brookes, Esq., North House, Tewkesbury; gardener, Mr. J. G. Kitching. Second prize, value £2 2s., Sir W. Throckmorton, Bart., Buckland Park, Faringdon; gardener, Mr. J. Gough. Third prize, value £1 1s., W. M. Foster-Melliar, Esq., North Aston Hall, Deddington; gardener, Mr. Pearce. Fourth prize, 10s. 6d., Mr. Geo. Kirtland, Bletchington.

— WE have received a box of beautiful GLOXINIAS AND BEGONIAS from Messrs. Sutton & Sons of Reading. The flowers are of great size and substance, and represented in a great diversity of colours—from white through the various shades of pink to glowing crimson, and from rosy lilac to the richest purple. The throats of many are extremely pure and the lobes distinctly marbled. Such flowers as those before us can only be produced by a strain of great excellence. The Begonia flowers are equally meritorious, some of them exceeding $4\frac{1}{2}$ inches in diameter, and with great substance of petal. All the colours in which Begonias are seen are represented, from pure white to glowing vermilion-scarlet, and only by much care in selection and superior culture could such admirable examples be produced.

— A correspondent writes:—"Those interested in Mr. Taylor and his work, which I presume includes most of your readers, will be pleased to hear the GRAPES AT LONGLEAT give promise of being remarkably fine this season. In all probability the crop will prove to be the heaviest, and in other respects the best yet grown in that famous vinery. The foliage and wood are magnificent, and that, too, without any assistance from the syringe. The bunches are large and well-shaped throughout the divisions; but such is the extent of the structure, the visitor does not at first glance appreciate the size of the bunches and berries, or even the extent of the crop. The Muscats apparently have set well, this, as will be remembered, not having generally been the case, and Mr. Taylor is to be congratulated upon the success attending his well-thought-out remedy for imperfect stoning. I hope to see these Grapes again in August or September, at which date they will be well worth a 'pilgrimage.'"

— AT the Chelmsford County Court last Tuesday an ACTION OF INTEREST TO PLANT-EXHIBITORS was decided by Dr. Abdy, the Judge. It appears that at a floral exhibition at Chelmsford in July last a plant of *Phœnocomma prolifera Barnesii* was exhibited by Mr. Duffield, solicitor, of Chelmsford, and gained a prize. Before it was removed from the exhibition, however, it sustained damage. Rewards were offered for the discovery of the offender, but without avail. Subsequently circumstances transpired which induced Mr. Duffield to believe that the injury had been inflicted by Thomas Simpson, gardener to Mr. H. Wells, J.P., Chelmsford, himself also an exhibitor and a member of the horticultural committee. An action was now, therefore, brought against him to recover the estimated value of the plant—£2. The defence was that the injury was caused through the carelessness of the plaintiff's own gardener in allowing it to fall. That person, however, declared that he had seen the plant sound at one time in the tent, and fifteen minutes afterwards had found it mutilated, no one having had access to it in the interim but the defendant. Judgment was found for the plaintiff, and an application for a new trial was refused.

DUCKS IN THE GARDEN.

I NEVER knew slugs more abundant than they are this season, and complaints are very prevalent about their depredations. The newest plantations of Asparagus have been much injured by them, and nothing that is at all to their taste escapes. We have used hot lime for the vacant plots, and this proves an effective destroyer of slugs as well as a good pulveriser, which the soil much needs this season. Where no lime was applied we avoided planting small plants. Brussels Sprouts, Cauliflowers, Broccoli, Savoys, and Lettuces have been pricked out where they can be well looked

after, and when of good size transplanted with much soil about the roots. In this manner they do not flag to any serious extent, and are not much eaten. After all we must give most credit to a brood of semi-wild ducks, which have destroyed innumerable slugs without greatly interfering with the growing vegetables, Asparagus excepted. The hen mother was confined in a coop under a tree, and the ducks allowed the run of the garden and otherwise treated like chickens. They were fed, but not overfed, in order to insure a maximum amount of work with a minimum amount of injury. If they were very hungry, this happening during dry weather, more food was given, or the Strawberries, before they were netted, were greedily swallowed. They are apt to sit about on Pinks and Carnations, &c., but I find an old mat over a trellised cistern proves a more attractive resting-place. Seeing the ducks at work of an evening has been a very pleasing sight to

me, knowing so well the trouble and anxiety they prevent.—
W. IGGULDEN.

PACHYSTOMA THOMSONIANUM.

DWARF Orchids of real decorative value are not by any means abundant if we except the Cypripediums and those charming "Indian Crocuses" the Pleiones; but in the distinct West African plant *Pachystoma Thomsonianum* we have a welcome and a valuable addition to the group. It has been repeatedly observed that this Orchid possesses a remarkable resemblance in general appearance to the last-named favourites, and the fact is evident, but at the same time it is not in any danger of being mistaken for them; the chief feature, which is suggestive of similarity, being the number of rosy white flowers produced on peduncles a few inches



Fig. 102.—PACHYSTOMA THOMSONIANUM.

high, presenting a mass of blooms close to the surface of the soil. When the plant is grown in a pan or wide shallow pot this character constitutes their great claim to attention, as, if well flowered, an excellent and striking effect is produced.

The pseudo-bulbs are small, somewhat egg-shaped, the leaves 6 or 8 inches long, the peduncles bearing one to three flowers each. The sepals and petals are narrow, pure white, with a glossy shining surface; the lip being divided into three narrow acute segments of an intensely rich rosy purple that, contrasted with the other portions of the flower, is very attractive.

This species is of recent introduction, having been obtained a few years since by Messrs. J. Veitch & Sons of Chelsea from the West Coast of Africa, where it was collected by Mr. Kalbreyer, and at his request it was named in honour of Mr. Thomson, who has long been a resident in that district. It was first exhibited before the Royal Horticultural Society at South Kensington on October 14th, 1879, when a first-class certificate was awarded

for it. The woodcut represents one of Messrs. Veitch's specimens, and admirably indicates the distinguishing characters of the plant.

THE WEATHER IN DURHAM.

SINCE the 10th inst. we have suffered a series of gales from nearly all points of the compass; but the climax seemed to arrive on Wednesday the 14th inst., when the wind blew almost a hurricane from the north-east. Except during the middle of the day it has been bitterly cold, and even hardy plants made no headway. The foliage of forest trees is torn and lacerated in a frightful manner. More particularly does this apply to Planes and Chestnuts; but even English Elms have their hard rough leaves bruised and blackened in a way that is pitiful to see.

Plants in herbaceous borders, except in the most sheltered positions, are battered and knocked almost past recognition. Antir-

rhinums, Foxgloves, Pinks, and all tall-growing plants are either totally destroyed or very much disfigured. Bedding plants had not "got hold," and have suffered, as might be expected. The kitchen garden is not any better served. Everything above ground is bruised and battered in a most remarkable manner, and all walks and roads are strewn with broken branches of trees and heaps of lacerated leaves meeting the eye at every turn.

Farmers must have suffered from the ill effects of the continued storm. Potatoes are battered about until they are almost a complete wreck. Turnips, which are all sown on ridges in the north, are almost blown out of their places. From farms to fish is a transition in this seacoast district, and I only wish to point out that an old fisherman told me that he never remembered seeing the sea so high at this time of the year, and never saw it so high for so long.

Whatever may be the result, I am of opinion that vegetation will need all its recuperative powers to recover from the injury it has received. The weather considerably improved at the time of writing (June 16th), but the air is still cold and ungenial.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth.*

SOUTH ESSEX HORTICULTURAL EXHIBITION.

JUNE 14TH.

WHEN a society is accorded such liberal patronage as that at Leytonstone is favoured with, and the management is energetic, success may be most confidently expected, the surest advance being made when the local support is general and earnest. This certainly appears to be eminently the case at the eastern metropolitan suburb in question, for not only are excellent displays of plants, flowers, and fruits annually produced which attract visitors in large numbers, but the subscriptions are so liberal that even with adverse weather on the day of the Show the Society has little to fear as regards their ability to close accounts with the prizewinners and discharge their other expenses for the year. One great reason that they continue prosperous is, no doubt, due to the valuable assistance given by the President, J. G. Barclay, Esq., of Knott's Green, who, besides placing a large meadow at the disposal of the Society for the Exhibition, also throws his beautiful garden open to all visitors. The latter in itself is almost as great an attraction as the Show, and gentlemen who thus so freely endeavour to forward the interests of a Society deserve great praise.

The Exhibition held last week well maintained the credit of the horticulturists of the district, for all the productions shown were distinguished by their satisfactory quality, though, perhaps, the competition has been keener in some of the classes in previous years. As usual, plants formed a large portion of the display—clean healthy specimens, mostly of moderate size, being shown in all the classes. Stove and greenhouse plants were well represented, the best eight specimens being those staged by Mr. Donald, gardener to J. G. Barclay, Esq., Knott's Green, Leytonstone, who was worthily adjudged the leading prize for beautiful examples of *Adenandra fragrans* 4 feet in diameter and profusely flowered, *Statice profusa* of very rich colour, *Erica Easoniana* in fine condition, 5 feet in diameter, fresh and healthy; *Ixora Williamsi*, *Stephanotis floribunda*, and others of similar quality. Mr. J. Douglas, gardener to J. F. Whitbourn, Esq., Loxford Hall, Ilford, was a close second, having a fine variety of *Anthurium Schertzerianum* bearing ten large richly coloured spathes, *Dendrobium nobile* well flowered, *Ixora Williamsi* in grand form with enormous trusses of its bright rosy orange flowers, *Boronia elatior*, and *Dendrobium thrysiflorum* very healthy. Mr. Monk, gardener to W. Fowler, Esq., Leytonstone, took the third position with creditable plants, his best specimen being *Kalosanthes Phoenix* flowering profusely. For one specimen flowering plant Mr. Douglas gained the chief honours with a magnificent *Anthurium Schertzerianum* having over four dozen spathes. Mr. Donald followed with *Dracophyllum gracile* 4 feet in diameter trained in globular form and freely flowered, Mr. Monk also securing an equal second prize for *Clerodendron Balfourianum* of considerable size and vigour.

Orchids were admirably shown by several exhibitors, the collection of eight plants staged by Mr. J. Douglas, for which the premier prize was awarded, being especially interesting. *Dendrobium Dalhousianum* was in grand condition, having fourteen fine spikes. *D. Devonianum* had six growths loaded with flowers, one having over two dozen. *Lælia purpurata* had twenty richly coloured blooms, *Calanthe veratrifolia* and *Anguloa uniflora* being similarly well grown. Mr. Gilks, gardener to A. Borwick, Esq., Walthamstow, took the second position with smaller but neat healthy plants, *Oncidium leucochilum*, *Masdevallia Harryana*, and *Oncidium macranthum* being noteworthy. For four Orchids Mr. Monk was first, his specimen of *Aerides odoratum majus* with five spikes being particularly fine. Mr. B. Ship, gardener to J. R. Scott, Esq., was a close second; and Mr. R. B. Ashby, Walthamstow, secured the third position, both showing well. Mr. Gilks had the best single specimen (*Lælia purpurata*), having twelve large deeply coloured flowers. Mr. Douglas followed with *Cattleya Warneri* bearing nine flowers; equal third prizes being secured by Mr. Foster (gardener to R. Johnson, Esq.) and Mr. Monk.

Ferns were well shown, the leading collection of six exotic forms

being from Mr. J. Douglas, comprising healthy examples of *Adiantum cuneatum*, *A. formosum*, *Gleichenia speluncea*, *Dicksonia antarctica*, and *Dicksonia fibrosa*. Mr. Barton, gardener to H. Carter, Esq., was a close second; and Mr. Donald third. In the smaller class for four Messrs. Monk and Peters (gardener to W. Pearce, Esq.) were the prize-winners in that order. Beautiful specimens of choice British Ferns were staged by Messrs. Gilks, Donald, and Merritt, the first two having particularly pleasing collections.

For four fine-foliage plants Mr. Fisher, Snaresbrook, took the chief position with *Alocasia metallica*, *Pandanus Veitchii*, *Croton Weismanni*, and *Cocos Weddelliana* in excellent health. Mr. Donald secured the second position, his best plants being *Theophrasta imperialis* and *Dieffenbachia Bausei*. Coleuses were mostly of moderate size, but admirably coloured; Messrs. Monk, Fisher, and Fitch (gardener to G. Blackburn, Esq., Wanstead) taking the prizes in that order. *Caladiums* were also fairly represented.

In several other classes, such as those for groups, cut flowers, fruit, and vegetables, the competition was good, most of the exhibitors already enumerated taking prizes in some of the classes. All the exhibits were well arranged, and the Secretary, Mr. G. E. Cox, deserves much praise for his efforts to render the Exhibition a success.

THE VARIEGATED AMERICAN ALOE.

(*AGAVE AMERICANA VARIEGATA*.)

I SEE it complained of this plant that it is one of very slow growth, and as it is one that makes a pretty contrast among other plants wholly different, and is worth growing for that purpose even where no other succulents are grown, some account of my experience with it may be of service.

In the first place, when in a greenhouse or window (it is a good window plant) it appears to do better where the sun does not shine much upon it. Although a succulent it grows faster in a north window than in a south one, but it grows fastest of all out in the open air during the warm months stood on a slate or tile exposed only to the morning sun. Secondly, it will not bear being shaken out when repotting; the roots must be left undisturbed. The young offsets, which are produced abundantly, make the greatest progress if planted out in June in warm well-drained ground. They should, of course, be taken up and potted before frost comes, and should then be kept in the shade for a while or they will turn yellow. Good fresh loam, pounded bricks, and sand, without any admixture of manure, suits them.

A curious circumstance happened in the case of a large old plant which from neglect had lost its lower leaves and become scraggy. It was broken off by accident close above the soil, and then, merely to have it out of the way, was placed in a pot only partially filled with soil, so that while the broken part rested on the earth the leaves above did the same on the sides of the pot and kept the plant upright. Nothing more was thought about it till some time after it was found to have rooted into the soil it rested on, and it eventually made a handsome plant.—A. BOYLE.

WORTON GARDENS, ISLEWORTH.

A PARSON'S fortnight of holiday a year, which really means only ten days of available sight-seeing, for the journey up and the journey down cut off two days, and Sunday is a no-day, as in law, so in pleasure-seeing. This one holiday a year, how much he tries to see in London during its few days of real and most welcome change to a country clergyman! What an enlivener! What a fillip to the mind it is! What a time for storing up knowledge for future use and gratification!

But though only ten days I must try and get one for a fruit garden. I want to see what I never saw before—a metropolitan market garden. Private gardens by the hundred, nurseries by the dozen I have visited, but a London market garden never. Where amid the many can and shall I choose? The abundance is puzzling. But a friend settles the matter thus: "Go to Isleworth; inquire for Mr. Warren. He will, I am sure, give 'WILTSHIRE RECTOR' a warm welcome. He has a large and capital market garden; he has poultry and bees as well as fruit. Just the place to suit you. Go." A fine morning, early summer, with a warm sun shining and a pleasant breeze going; a day—would there were more of them—when it is a luxury to exist.

But what of Isleworth itself? It lies on the great plain of Middlesex in the valley of the Thames. By its name we might suppose it to be, or have been, an island in former days, but not so. The most apparent derivation of a name is usually the furthest from the true one. Such is the case with Isleworth. There never was an isle connected with it, but three hundred years ago it was called Thistleworth, then Istleworth, and then Isleworth; indeed it was called Thistleworth by the native poor almost in our own day. The best way to get to and from Worton Gardens is from Twickenham, as there are more trains than from the rather nearer Spring Grove station on the loop line. Flat and woody and market gardening is the country, with, away from the Thames, no feature noticeable. Worton was a royal manor in old, very old days. Royalty gave place to nuns, they to porcelain works, and they to market gardens, in which

a large portion of the land is laid out to help to feed the great monster London with fruit and vegetables. A turn down a lane, and I am at Worton Gardens and soon in conversation with Mr. Warren.

But first one more historic and horticultural note. Mr. Warren is grandson of the Mr. Keens who raised that most widely known Strawberry that bears his name, popular to a vast degree when, and long after, it was brought out in 1810. It was to these very gardens that squires, and even noblemen, came to make their purchases of Keens' Seedling, not trusting their own gardeners. Here they came posting down, and carried the roots off in their own carriages for security against possibility of change or mistake. Singular to say that now again, sixty years later, Keens' Seedling has become popular among gardeners, and particularly amateurs.

Worton Gardens are, as to size, as follows. Fifty-six acres are under fruit culture, and sixty acres are devoted to vegetables. In addition to these 111 acres 43 more are to be laid out in fruit, being land newly acquired by Mr. Warren. To give an idea of the quantity of fruit grown—forty-two tons of Plums were sent to London market each week for three weeks during the year 1880. Last year the quantity of Apples grown and dispatched was enormous, the year being so productive for that fruit. This is all told me in the office, but now to proceed through the gardens with Mr. Warren and his son. But a glance by the way at the houses where the preserving of fruit goes on on a large scale. I notice in some of the sheds and yards there first-rate-looking Dorking fowls and chickens running about of Burnell's, Lingwood's, and Beechey's strains—dark birds, of course, as they are always the heaviest, one bird in these yards turning the scale at 11 lbs. I pass on and see a house full of *Stephanotis* 72 feet in length, another of the same dimensions devoted to Ferns and Cucumbers, others to Cyclamens, and so on. Next I come to the bee quarter, where were in one part forty hives, in another fifty. "These bees," said Mr. Warren, "I consider next in value to me to manure."

Here let me remark upon some peculiarities of a market garden. It is just the opposite to a nursery. The nursery feeds the market garden, the latter the people. In a nursery budding, grafting, propagating are going on; specialities for amateurs of high-class gardening instincts and habits are cultivated. In nurseries are many varieties, some for trial, others to meet various wants and fancies; some amateur gardeners clinging to old ways and plants and trees, others fond of experimenting in things new. In nurseries discoveries are sometimes made, sports are noticed and cultivated with diligence, new seeds are sown and tried, and then advertised; and on rare occasions some high experiment in flower or fruit is made, and a plant or a tree named and sent out, and its name never dies. Now a market gardener is the very opposite to a nurseryman. He must grow the few and the useful, what he can send in large quantities to the market with the certainty of a sale: hence the varieties that suit best an amateur will not suit him. The trees suitable for his garden are sometimes wholly unsuitable to that of a small or even large amateur. This must be borne in mind by the reader. Take, for instance, the Gooseberry here grown in vast numbers, the Lancashire Lad; very prolific, very large, capital for sending green to market, but when ripe it would not suit a delicate taste, hence would not do for the dessert. Two other Gooseberries are also grown to a very large extent—viz., Sulphur and Keens' Seedling. These three sorts are so valuable because they do not split with the wet. The May Queen is not so excellent in rainy seasons. The Lancashire Lad is so useful, that although fifty thousand bushes had been planted, thirty thousand more were put in last year.

The appearance of a large market garden as one walks through it, though neither pretty nor picturesque, has a certain impressiveness and pleasant umbrageousness about it. Lines beside lines of standard fruit trees, between them acres of Gooseberry bushes, or in turn one comes upon acres of Peas in full bloom, when I saw them of course not stuck, and we wonder how it will be possible to gather the pods. The lower crops are varied. When a quarter containing Gooseberries begins to look shabby, the best of the day for the Gooseberries being over, they are grubbed up, and a crop of Peas or Onions succeeds to clean the land. Then, of course, there are acres of Currant bushes, and Raspberry canes, and Onions. I learn that this year the Apple crop is very poor, the Currants satisfactory, the Gooseberries excellent.

Of Apples I heard great praise bestowed upon Stirling Castle—praise thoroughly due. Early Julien is another Apple grown most extensively at Worton Gardens, also of course Wellington and Lord Suffield, also Greenup's Pippin, and a local one raised close to Worton, and which, from the description I had of it, ought to be sent to the Royal Horticultural Society for a certificate, and then be in commerce. Another Apple Mr. Warren's son speaks highly of as doing well with them and for their, and indeed any purpose, is Duchess of Oldenburgh; yet another variety, but which is unknown to me, was spoken well of—the Scarlet Incomparable, a rather late sort.

The great Pear for market purposes appears to be Hesse, pronounced Hazel. Plums for the wall, Rivers' Prolific and the Duke of Edinburgh, the latter, by the way, a Middlesex Plum, and both of which had heavy crops. For the open, Victoria and Gisborne's.

I cross a road and come to the forty-three acres recently acquired by Mr. Warren, and which from land for the use of pedigree Alderney cattle of its recent owner, a noted breeder and exhibitor, is now being transformed into another market garden. The sheds, very spacious

ones, where the cattle lived during the winter, are now turned into Mushroom houses. I lift up the mats and see a snow-white harvest underneath.

I come upon a new field of thirteen acres planted with an upper crop, so to speak, of only four varieties of trees—distance, 12 feet each way—Lord Suffield and Julien Apples, and Victoria and Gisborne Plums. It may surprise some of our readers who do not approve of "WILTSHIRE RECTOR'S" advocacy of only a few, some twenty to forty varieties of Apples and Pears being cultivated, to hear of seven acres and a half being planted with only two sorts of Apples. Even allowing that fewer are needed for a market garden than for one devoted to the use of one family, still the selection of Lord Suffield and Dumelow's Seedling (Wellington), the best Apples for an amateur, also for market garden purposes, adds as it were another medal of approbation to these two varieties. In this thirteen-acre field are four thousand maiden fruit trees of the sorts named and fifty thousand Raspberry canes, while Bedfordshire Onions are also among the lower crops in great numbers. This forty-three acres of new land will another day be interesting and valuable when the present four thousand little maidens waving with every breeze become sturdy trees.

Turning back one comes upon the larger and older garden, whose pleasant shade is welcome this warm day, for a market garden is a shady pleasant place on a sunny day. One comes upon three poultry yards with plenty of occupants, and, indeed, chickens are all over the garden—hum of bees and crowing of cocks, and attempts at the same of cockerels. So there are rural sounds as well as sights, and yet only some six miles or so as the crow flies from the "mighty heart" of London.

Numbers of women are busy picking Gooseberries—women, I learn, that yearly come from a distant county for the work, and use brings aptitude.

Such, then, is the result in words of my first investigation of a metropolitan market garden. Another day, I suppose, bricks and mortar will reign where now are fruit trees, and Isleworth will be what Brompton now is; but not yet, happily. Nature still sways, but it is Nature trimmed and well cultivated; and though in Isleworth, once Thistleworth, it has nothing to do with Thistles, for the soil is neatly as well as prolifically treated. A hobby, or rather two—poultry and bees—are united with business; hence two pleasures are added to what is always pleasant—a prosperous trade. It gratified me to see Mr. Warren's son not only brought up but thoroughly interested in the garden, being heart and soul a market gardener, unlike many young men who follow in their father's steps but without their father's aptitude and energy. The future of England for success or failure is in the hands of our young men.—WILTSHIRE RECTOR.

PRIMULA CORTUSOIDES AND ITS VARIETIES.

THIS is a charming group of hardy flowers, respecting which there is some difference among our cultivators as to the proper name to be given to what is here regarded as the variety *amoena*. Some wish to give this form a distinct specific name—*P. Sieboldi*. But are the distinctive characteristics of the plant sufficient to warrant this? The alleged reasons are that there already exists a *Primula amoena*, a distinct Caucasian species, not found in the trade and extremely rare in its native habitat. Granted, but that does not interfere in the least with the plant under consideration, as the name of this is only varietal and could not be mistaken for the true *P. amoena*, which one would be glad to see as plentiful as *P. cortusoides*, as it is a most lovely species, but I am not aware that it is under cultivation anywhere except with Mr. Max Leichtlin of Baden Baden.

It matters, perhaps, but little to those interested in floriculture by what name the plant is known, providing the desired plant is secured. The main question to decide is whether any particular species is worth cultivating or not. Happily in this case we are dealing with very desirable plants, and which will ultimately yield in the hands of our florists an almost endless variety, compared with which there will be but few hardy plants of equal value. The varieties at present known are undoubtedly a guarantee for this end. For borders, rockeries, and other places they are most charming, being easily grown and very attractive when in flower. The flowers in a cut state are equally desirable. Easily grown and quite as readily forced, they are particularly valuable in keeping up a continual supply of flowers, and there is no difficulty with heat at command to have them in from Christmas until they appear naturally outside. When the plants are required for forcing strong crowns are highly desirable, and to secure these the plants must be liberally cultivated. This may be accomplished in a sheltered partially shady border with a friable and rich loamy soil containing a good supply of well-decayed manure and leaf soil, and if some coarse sand is added it will be beneficial. The border should be well broken up and the manure thoroughly incorporated with the soil. After flowering the plants may be divided and placed in the border a fair distance apart, so as to give ample room for development. When established they will

make rapid growth, and by the end of the season good flowering crowns will be ensured, which should be potted in the autumn with the exception of those required for stock the following year, and the pots plunged in ashes or fibre, when they can be removed into heat as they are required; otherwise, perhaps, when fresh batches are wanted it will be difficult to raise them from the borders owing to sharp frosts. They are also easily raised from seed; sow in a cold frame as soon as ripe, and prick off and plant out the young plants as they require attention in a similar position. Such plants make very free growth and come fairly true from seed, especially *amoena*; but there will be some variations, and it is impossible to reckon upon constancy when the seed from the hybrid forms are sown, but for the purpose of supplying cut flowers this might be immaterial if good blooms were obtained.

The typical form, *P. cortusoides*, has evidently been known in this country for many years. About the year 1790 it was a rare plant, and cultivated by Messrs. Lec & Kennedy, nurserymen, at Hammersmith, of whom Mr. Curtis obtained a plant, and in 1798 a good figure of it appeared in the "Botanical Magazine" (plate 399). It is very free-growing with hairy *Cortusa*-like leaves and umbels of rosy purple flowers on stalks 6 to 9 inches high, varying both in size and colour. It is a charming little plant for borders, rockeries, masses in woods and wild places where it would become naturalised. It is easily forced, and can be readily raised in quantity from seed, but as a decorative plant it will not bear comparison with any of the varieties described below.

P. amoena is a vigorous-growing variety with short stout flower stalks, supporting large umbels of well-formed flowers of a clear magenta colour and good substance; the individual flowers are very fine. *P. amoena grandiflora* has a habit similar to the last, but with larger flowers, drooping, blush white inside, externally deep rose; a most distinct and effective variety. *P. a. grandiflora alba*, similar in habit to the two last; flowers not quite so large, pure white, and more erect; a most valuable variety for cutting, very free in growth and flowering. *Boadicea*, habit good and free; trusses large, with well-formed large flowers of a delicate lavender colour, with white centre; very elegant. *Cordelia*, a grand variety, very robust, with short spikes of very large flowers measuring fully 2 inches across in a good truss, blush white inside, externally pale lavender; a most showy kind. *Fascination*, a form with a vigorous habit; flowers large and drooping on taller spikes, white inside, pale purple outside, with the margins of the corollas deeply and finely fringed. *Intermedia alba*, a variety suitable for growing with *cortusoides*; it is very floriferous, with flowers about the same size as those of that kind, white striped with green. *Lilacina*, a very distinct variety, with stout stalks and large sub-pendulous flowers of a deep lilac colour with finely fimbriated margins. *Peach Blossom*, a very robust grower, with large umbels of flowers, bright pink with white centres and sparingly fringed edges; a most showy kind, the colour very distinct. *Purple Queen*, very free and sturdy; umbels crowded with large well-formed flowers of a deep purple colour and good substance; a most desirable kind. *Rosea*, a strong-growing kind, with good trusses of large flowers measuring nearly 2 inches across, and a clear rose colour and full-edged. *Rubra laciniata*, trusses full; flowers large, white inside, marked with rose, externally rosy red, with the margins deeply fringed; very free and showy. *Vivid*, habit good and free; flowers in compact umbels, rather larger than those of the typical form, bright magenta rose; the most distinct colour of the group, and a very valuable variety for the supply of flowers. *Violacea maxima*, very strong grower, with large umbels; flowers 1½ inch across, deep violet purple, with the edges deeply cut and slightly fringed. There are several others, notably the varieties sent out last season by Victor Lemoine, which were remarkably good, and it is to that enthusiastic florist that we are indebted for our best varieties in these as well in many other favourite florists' flowers.—N.

THE COMPARATIVE HARDINESS OF HARDWOODED PLANTS.

COLONEL H. M. DRUMMOND HAY read a very instructive paper upon the above subject before the Dundee Horticultural Association in March last, detailing the observations made at Seggieden, Perthshire, during the three preceding winters. This has now been issued in pamphlet form by the Association, and the information it contains will render it extremely useful and interesting to gardeners and amateurs generally. A large number of plants have been noted, and these are arranged in four sections according to the degree of injury the plants have sustained, the first including all those that were proved to be perfectly hardy. The experiments are especially valuable, as those plants which have survived in that district will probably be equally hardy in

the greater portion of Britain, and thus convey to cultivators an idea respecting the plants suitable for their own districts.

As an example of the method adopted we quote the following from the first section:—

"*Acer atro-purpureum*.—*A. atro-purpureum*, from Japan, is thoroughly hardy, and much to be recommended for the beauty of its foliage, especially with the sun shining through its leaves. There are now more than a dozen varieties of these beautiful-foliaged plants from Japan to be had of every shade. I have not yet tried them, but if they prove as hardy as *atro-purpureum* they will be the greatest acquisitions in landscape gardening we have had introduced for some years. Of the variegated pseudo-platanus varieties—of which I have tried several, and which are quite to be depended upon—the tricoloured *Leopoldi* carries off the palm, and is most desirable in any shrubbery, having the appearance more of some of the newer variegated *Geraniums*, contrasting well with darker-foliaged plants, of which now there are many, such as the purple Nut and the larger-leaved purple Beech.

The author concludes his treatise with some apt remarks upon the desirability of extending the collections of hardy exotic plants, which we extract.

"It has often struck me as somewhat strange in these days, that among other things the taste for hardy exotic hardwooded plants—I do not allude now to Conifers, but more especially to flowering shrubs and fine-foliaged evergreens—should be so little cultivated. We often see this in many of our public parks and private domains. There may be masses of bedding plants, good collections of herbaceous and rock plants, and ferneries, together with pinetums, and perhaps beds of *Rhododendrons* and *Azaleas*; but what is the shrubbery like? We turn down a side walk, and there we find a few common Laurels, Lilacs, Snowberries, and other common plants, with Hollies stuck about, and perhaps some Box trees, an *Aucuba* or a common *Rhododendron* or two, and this merely to hide the stable or some other objectionable object. But seldom is it we see collections of the choicest hardy exotic shrubs brought together and artistically grouped, in masses of fine foliage and flower, on some well-selected site, and I confess I know of no class of plants which will afford more satisfaction in that respect. Nor is there any out-of-door class to be found in which a more continued display of beauty can be maintained for nearly the whole year round. Where could there be anything more beautiful than masses of *Rhododendron atro-virens*, *Nobleanum*, and *præcox*, together with *Mezerium album*, *Jasminum nudiflorum*, and the early Heath 'herbacea,' and its varieties *alba* and *carnea*, all in flower at the same time, vying with the *Crocus* and the *Snowdrop* in earliest spring. Following these come in quick succession other precocious kinds of *Rhododendrons*, early *Andromedas*, *Spiræas*, *Forsythias*, *Loniceras*, early *Genistas*, and a host of others, till in June and July a perfect blaze of flower is presented, this continuing with fresh successions through the whole summer and autumn till met by the Christmas Rose in early winter. In short, there is not a month passes in which the shrubbery may not be made to yield something to afford pleasure, which cannot, that I am aware of, be said of any other description of plants growing in this climate out of doors. It has always occurred to me that the beauty and merit of hardy exotic flowering shrubs, both deciduous and evergreen, has never been sufficiently brought forward in our botanical and horticultural magazines and papers, or even in our exhibitions, to create any particular interest in the public mind; so much so, that I know there are nurseries where some of the finest plants have had to be thrown out to make room for those that are more common to meet with a readier sale, and under the circumstances it is almost surprising that our nurserymen grow so large a number of hardy rarities little inquired for as they do. Of stove plants and rare Orchids we have plenty of information, consequently we see glass structures of various kinds rising in every direction. Not so with the shrubbery, though I am glad to say the tide seems to be turning a little in that direction; and now that the difficulties of transit from every part of the world have almost vanished it is not too much to hope, were once the popular interest aroused, that we may see still larger additions swelling the no small stock of hardy valuable shrubs already existing in most of our large nurseries, and a more intimate knowledge attained than we have at present of their constitutional merits as to temperature and climate suitable for their respective requirements in all parts of the country."

FOXGLOVES.

To those who have positions in their gardens where tall spikes of flowers may be considered effective amongst trees or shrubs, or at the back of broad borders of mixed flowering plants, let me recommend Foxgloves. Those who admire Hollyhocks should compare their favourites with a good well-cultivated strain of Foxgloves. For every spike the Hollyhocks can produce in a given space Foxgloves will produce two or three, and they need not the coddling, trouble, manure, or even soil demanded by Hollyhocks. As for disease, who ever heard of diseased Foxgloves? Then, as for expense, a sixpence worth of seed will produce hundreds of plants, but the much better display is the main recommendation.

Foxgloves are raised from seed, and it is doubtful if there is a wrong time to sow them. Some seed that I threw in the snow produced a fine batch of plants! Still, just when the seed is ripe, or in spring, may be safely chosen. The plants need placing out a foot apart for the first year, and when strong enough may be planted where they are to flower, which they will do the first year after, though possibly they will be much finer the following year. Any soil will suit them, but to have innumerable spikes and 8 feet high rich deeply-dug soil is necessary. Such a sight is worth an autumn flower show, especially when there is a variety of colour from white all through the shades of red up to purple.—SINGLE-HANDED.

PEACH BLISTER.

"CAN you tell me what is the matter with my Peach trees? All the leaves are like those I send. I am anxious to know the cause of the evil, and a remedy." So writes "K. K., Cheshire," and another correspondent has also required information on the same subject. The samples sent to us are identical with a spray we sent to Mr. Worthington G. Smith seven years ago. They were subjected to a microscopical examination, and an excellent engraving was prepared by Mr. Smith, which we reproduce with references to the several parts so clearly delineated.

In the accompanying cut, A shows the Peach blister as com-

monly seen; when the fungus is present a white bloom may here and there be detected on the red blister, and this bloom when magnified one thousand diameters linear is seen as shown at B. It is excessively minute as compared with the thickness of the leaf and its component cells; the latter magnified to the same scale are seen at C. The fungus consists of a stratum of fine threads, which throw-up a series of small flask-like bodies (asci) filled with spores, the flasks being mixed with necklace-like growths D, which are clearly a second form of fruit. Each ascus, or flask, contains eight spores, which at certain moments open at the top, as at E, and discharge their spores (which are analogous with seeds), into the air to continue the existence of the species elsewhere.

This shows most clearly the fungus (*Ascomyces deformans*) which was working such mischief in the leaves. "K. K." will now see "what is the matter" with his Peach leaves, but as to the cause of it there is a great divergence of opinion. The majority of scientific men regard the fungus as the actual cause of the evil; the majority of gardeners, on the contrary, regarding it as the results of a predisposing cause—namely, cold winds that check the growth of the leaves and rupture the sap vessels, thus providing a suitable nidus for the germination of the spores of the corroding parasite.

It will not be inappropriate to adduce some evidence that has been submitted by the respective authorities in support of the



Fig. 103.—PEACH BLISTER WITH ACCOMPANYING FUNGUS (*ASCOMYCES DEFORMANS*).

different theories. Mr. Smith, on the page quoted, referred to the specimen figured as follows:—

"When the specimens were exhibited before the Scientific Committee of the Royal Horticultural Society, Mr. Smee, who is well acquainted with the disease, expressed his belief that the blistering was caused by an injury inflicted by an aphid, and he has expressed an opinion elsewhere that the fungus is seldom really seen with the blister, but that the aphid is an invariable accompaniment. De Bary, however, and Berkeley say the blister is caused by the fungus, and the former has published a figure of the mycelial threads as seen inside the leaves amongst the cells before the perfect fungus appears upon the surface. However this may be, we must confess that our views range on the side with Mr. Berkeley, and we imagine the reason why the fungus is not invariably seen is simply because in its early condition it is confined to the interior of the lamina of the leaf, and its life may possibly be brief in its perfected state on the exterior. The spawn of the fungus, like the spawn of the Potato disease, is corrosive, and changes the green colouring matter of the cells from the usually healthy hue to a deep blood red."

There are two forms of blister with which we are well acquainted, one of which is almost invariably accompanied by insects if it is not caused by them, the other being as a rule perfectly free from aphides, as in the form figured, and also as sent to us by our Cheshire correspondent, and we submit this in explanation of the differing views of the late Mr. Smee and Messrs.

De Barry, Berkeley, and Smith. On page 481, vol. xxx., Mr. Luckhurst writes:—

"Peach blister is caused by the exposure of the expanding foliage to the influence of frost or cold cutting winds. Here are a few examples—1, Upon a west wall every tree is perfectly healthy with a free, strong, unchecked young growth clothed with fine foliage, perfectly clear and quite free from blister or blemish of any kind. 2, Upon a south outer wall, along which the cold east wind swept unchecked, the foliage of every tree, both Peach and Nectarine, is much blistered, but some leaves are quite sound, and these are near the base of the shoots and have had the shelter of the tips of surrounding shoots. Still clearer evidence of the scathing power of the cold wind is gained from a few shoots which, springing out further from the wall than the others, have their projecting tips entirely affected by blister—leaves, leafstalks, and the soft young wood itself are all discoloured, swollen, and contorted, having a miserable, sickly, gouty appearance. 3, Upon a south inner wall all the trees near the east end, and therefore having the shelter of the east wall, are quite sound, but further on where the trees are more exposed they are affected by blister precisely in proportion to the extent of such exposure. Cold ungenial weather is the sole cause, and that we have the remedy in our hands by planting on a south-western aspect and by affording suitable protection to trees in more exposed situations."

Mr. Luckhurst does not confound the two forms of blister here, but clearly distinguishes them, for he subsequently says three

trees were so much infested with aphides that they had to be repeatedly washed; the effect was a contraction of the leaf tissue to such an extent that most of the foliage was curled and deformed, yet there was not a blistered leaf on either of the trees. The same correspondent further observes:—

"Mr. Smith confounds blister with curl, which is caused by the attacks of aphides. Curl is often present in the foliage of Peach trees growing under glass, but blister is never found in a well-managed house. Mark! I say 'well-managed' advisedly, because a little mismanagement of the ventilators during the prevalence of a cold wind induces blister to appear even with 'great virulence.' Many examples might be quoted, but one will suffice. I was once asked to examine a rather bad case of blister under glass, and found that all along the house immediately under the ventilators the foliage was much blistered. Traces of the scathing power of the cold air were visible in other parts of the house, but nowhere was there so much affected foliage as in the direct line of the ventilators, thus showing plainly the source of the mischief and its remedy."

The above is in reply to a statement by Mr. Smith that "Peach blister often occurs with great virulence inside the most carefully constructed houses, and he further (after denying that he confounds curl with blister) observes, in maintenance of his view as to the fungus being the real cause of the evil and not the effect of a predisposing cause—

"No doubt the east wind will shrivel and wither all sorts of leaves and prepare them for the attacks of all sorts of fungi; but this is quite beside the question. A man may expose himself to the east wind and then die of bronchitis, consumption, inflammation of the lungs, or other diseases, but no one but a quack would say that man died of the wind. A child may sit by a drain and speedily die of diphtheria or typhoid fever, but although the drain may have predisposed the child to the attack, he dies of diphtheria or fever, not of drain. The truth of these statements is proved by the fact of diphtheria, fever, and bronchitis infecting healthy subjects who have not been exposed to winds and drains. It is known to be the same with Peach blister and a large number of other fungoid diseases of plants."

We turn now to the opinions of some other gardeners. Mr. Taylor of Hardwicke Grange says he is convinced, after much experience, that—

"Cold is the cause of blistering, and the remedy is protection. I have carefully protected the trees in my charge for the last two springs, and though it would be difficult to find trees more blistered than those always have been before, I have had no blistering since I adopted the above plan. I repeat that blister is caused by the leaf being chilled, and the remedy is protection. The curl is distinct from the blister, being undoubtedly caused by insects, but neither curl nor blister need be allowed where time and means are provided for preventing them."

Mr. Jenks of Bramletye, who is a close observer and excellent cultivator, has also written on this subject, and we cite the following sentence:—

"We do not confuse blister with what is commonly called curl, and shows great neglect, for that we can cure or prevent in a few hours with a solution of quassia chips, soft soap, and sulphur. It is the true blister that ruins our trees, and of which we know of no remedy but glass houses or cases. Canvas will not do it. My trees are thoroughly protected with canvas, and I have suffered this year greatly. The sap being retarded we have found, instead of leaves and branches, large ugly masses of thick blistered leaves as thick as one's finger. Why do we have this most when the extreme of temperature is the greatest? If it is not the cold winds how is it we do not have it, or very little of it, in a mild spring? Why does it not come later in the season or in the autumn? We never find it then. It is a fact that it is the worst when the trees are the most exposed to cold; it is a fact that if not exposed to cold winds we do not have it; it is also a fact that the two extremes of temperature are the worst—very hot sun in the day and extreme cold at night. I have a wall well sheltered from the east by Poplar trees, and after eleven o'clock no sun reaches the wall. On that wall I have young Peach trees, and this year they escaped better than those on a south wall. I consider that the extremes of heat and cold were not so great on the east as on the south wall."

We could quote more to the same effect, but it is scarcely necessary to do so. We have stated both sides of the question fully and fairly, and those who are interested in the matter must judge for themselves on which side the weight of evidence lies; but one circumstance we cannot overlook—namely, we very rarely indeed have examples of Peach blister sent to us during a genial season, and seldom if ever from trees grown under glass. It is when a change from warm days is succeeded by a period of cold weather, and when dry cutting winds prevail, that blistered Peach sprays invariably reach our hands. The blistered leaves, as ad-

vised in our "Work for the Week," should be removed and burned.

NYPHÆA ALBA ROSEA:

A HARDY PINK WATER LILY.

ON March 24th, 1880, I received by post from Messrs. Daniels of Norwich two plants of *Nymphæa alba rosea*. They were seedlings of such small proportions that I regarded the pea-like tubers and curious little leaves with feelings akin to dismay. Was it possible that the most careful tending could ever bring such tender infants to anything like the sturdy maturity of *Nymphæa alba*, or even to a size approaching that of *N. odorata*? They were potted separately in a rich mixture of loam and manure, and placed in the stove in pans of water sufficiently deep to bring the leaves to the surface. The quick appearance of larger leaves gave pleasing evidence that they were growing, and they soon required larger pots and more soil. In four months they became so large that I took them from the stove to an open pond, not turning them out of the pots, but placing the pots upon the pond bottom near the edge in about a foot of water. They made very little more growth that summer, but the leaves assumed a sufficiently stout appearance before dying in the autumn to induce me to leave the plants to winter there.

It is my custom to empty the pond containing the principal collection of aquatics in spring shortly before growth begins, in order to re-arrange the plants, to reduce the size of clumps becoming too large, and to clear away the annual accumulation of leaves and rubbish from the pond bottom, which we had to cover with concrete some years ago to eradicate *Anacharis*. Stations were then prepared for the two *Nymphæas*, and they were turned out of the pots and planted—one in 15 inches and the other in 27 inches of water. Both made a little progress last summer, but none of the leaves were full-sized. This year the plant in 27 inches of water has already produced several large and singularly handsome leaves 8 inches in diameter and almost circular, with curved lobes where the leaf divides behind the leafstalk, one lobe quite overlapping the other, which tends very much to impart the appearance of an unbroken circular outline to the leaves, in striking contrast to *Nymphæa alba*, which has a distinct opening and straight edges behind the leafstalk.

The first flower on this plant opened on June 7th, and is so lovely as to induce me to enter fully upon its history for the benefit of other admirers of aquatics. The flower is about two-thirds of the size of *N. alba*; it has a green calyx and five rows of petals, the outer white and delicately mottled with pink, which deepens to the inner row, which has a bright rosy hue. The prominent yellow stamens have a narrow pink stripe upon the outer side, and add much to the beauty of this loveliest of hardy *Nymphæas*. The plant in less depth of water is still weakly, with small undersized foliage and no sign of flowers, and will be removed to deeper water, for it is certainly worthy of every advantage that can be afforded it.

I may add that *Menyanthes trifoliata* has been very lovely again, but its flowers are all faded. *Aponogeton distachyon* is in full bloom and the air is laden with its sweet perfume. The double Arrowhead (*Sagittaria sagittifolia flore-pleno*) is fast throwing up its curious foliage, and as the bulbs are very fine it will doubtless have some handsome flowers later on. Nuphars, *Nymphæas*, Callas, and Irises are in full bloom, and all the other aquatics are flourishing.—EDWARD LUCKHURST.



HARDY FRUIT GARDEN.

THE leading shoots of Apricots, where required for filling vacant spaces, should be regularly attended to in tying or otherwise securing them, and the foreright shoots pinched back to three or four buds, so as to induce the early formation of short-jointed spurs, which are essential for the production of well-matured bloom buds for next season. Grubs should still be looked after, which are this season unusually abundant. They are readily detected by the folding-up of the leaves, and may be destroyed by squeezing. Provided the trees are well furnished with young and healthy wood the present is a good time for removing any superfluous, barren, or projecting spurs.

Dessert Cherries on walls may be treated similarly to Apricots, but Morellos should have as many young growths laid in as will uniformly furnish bearing wood for next season. Nail or tie in all other wall trees, such as Plums and Pears, securing a sufficiency of young shoots to fill up or extend the trees where necessary. In pruning Pears the foreright shoots should be shortened to three or four buds, as if cut in too hard the trees will probably start again into growth instead of forming fruit buds for next season. Any long spurs that have little beyond sappy growths should be cut back to short stubby shoots—i.e., spurs nearer the base, and these, from the greatest advantages of light and air consequent upon the removal of the useless spray, will in all probability develop into fruit buds for next season. Peaches and Nectarines should have the shoots laid in, and growths retained and pinched to attract the sap to the fruit. Avoid overcrowding the shoots, retaining no more growths than will allow full exposure of the foliage to light. Pinch all laterals to one joint as produced. Aphides are unusually abundant; the removal of the useless spray will admit of the more effectual application of an insecticide, such as tobacco water. Similar means should be adopted with Plum and Cherry trees infested with blue or black aphides, adding 3 ozs. of soft soap to each gallon of tobacco water, and it is more effectual applied at a temperature of 90° to 100° than when cold. Blistered leaves have been induced by the recent cold weather on Peaches and Nectarines. These should be removed, but gradually, so as not to give a sudden check to the growth, and be at once burned. With more genial weather the trees will grow out of it.

Pyramidal, bush, espalier, or cordon Apple, Pear, and Plum trees may also now be pruned, pinching the shoots to three or four leaves, leaving extensions about a foot distance asunder, and taking care that the pyramid and bush trees do not become crowded in the centre, as it is important that light and air have full access to the interior of the trees. Bushes or pyramids extending should have the leads pinched at about 12 inches of growth, and side growth to about 6 inches. The leads of espalier trees trained horizontally should be stopped at 12 inches to originate side growths for training to the wires at that distance, these to be trained in their full length until the available space is covered; afterwards the spray produced should be kept closely stopped to three or four leaves. Now is a good time to remove any barren or bare attenuated spurs, which will divert the sap into other channels to the benefit of the present crop and the formation and development of spurs for the future. All fruit trees carrying heavy crops of fruit, or from enfeeblement of growth needing additional support, should be well supplied with liquid manure, mulching over the roots with partially decayed manure as a means of retaining moisture and encouraging surface roots. The growths of bush fruits, such as Gooseberries, Red and White Currants, should when over-abundant be shortened to within a few joints of the base, which will allow of more light and air to benefit the fruit and assist in the development of the spurs. Raspberries in dry weather should be well supplied with water or liquid manure, especially in light soils, and the ground be mulched. Protection against birds must be afforded to bush fruits as they change colour, also Strawberries, and Cherries against walls.

Strawberries in Pots.—Where it is contemplated to form new plantations it is advisable to take the runners from fruitful plants only and layer them in 3-inch pots. When the pots are filled with roots the runners may be detached and planted in their permanent quarters, the ground being trenched or deeply dug and well manured. If due attention be given to watering and the removal of runners and weeds an abundant crop of fine fruit may be looked forward to next season. The kinds that do best with us on light soil are Pioneer, Vicomtesse Hericart de Thury, President, Sir Joseph Paxton, Eureka, and Loxford Hall Seedling.

For forcing, the runners should be layered so soon as available either in 3-inch pots for transferring to the fruiting pots when rooted, or into the fruiting pots at once, the latter perhaps being preferable when practicable; in either case it is important that the runners be from young, vigorous, and fruitful plants. If layered in small pots no drainage is needed, but the soil should be well pressed in the pots, whilst for the fruiting pots good drainage is essential, and the compost rammed as firmly as practicable. Turfy rather strong loam,

with a fifth of decayed manure and about a quart of bone meal to a bushel of compost, is suitable material for potting. Horn or the dust from comb-manufacturers is the best substance we have used for mixing with the soil for Strawberries, using it at the rate of a twentieth part. A slight indent should be made in the soil in the centre of the pot, and the runners there fixed by a peg to prevent displacement. Always keep the soil in the pots moist, and the runners will soon become established. For early forcing 5-inch pots are suitable, and 6-inch for succession and later work. The kinds that succeed best with us are, for early forcing, La Grosse Sucrée and Vicomtesse Hericart de Thury, which are good for succession, along with President, Marguerite, Dr. Morère, Sir Charles Napier, and James Veitch, with British Queen, Dr. Hogg, and Cockscomb for late work.

FRUIT HOUSES.

Under ordinary circumstances fire heat may be discontinued in most Pine structures, except for affording the requisite degree of warmth (80° to 90°) at the roots, or to assist in accelerating plants with fruit in an advanced condition of growth. Its use for houses containing successional stock will, if longer continued, prove ultimately to be more injurious than beneficial, as the temperature rarely falls below 65° by reason of the assistance which is obtained from the heated beds wherein the plants are plunged, and this temperature under such conditions is most suitable at this season for the satisfactory development of the plants. Newly potted plants will, as soon as the roots have taken hold of the fresh soil, make growth rapidly, and will need strict attention to the ventilation so as to avoid an attenuated state of growth. On fine days admit air from 75° to 80°, gradually increasing the supply until the temperature reaches 85°, when a plentiful amount will be needed at the top or sides of the house as the case may be. In the afternoon it should be diminished by degrees to about 80°, and at finally closing the house for the day a light sprinkling with the syringe should be given when sunny weather prevails. The early section of fruiting Pines will soon be finished, and from the stock of suckers on these plants a number sufficient to meet the demand for fruit will be required from this time onwards next season, and will form a supplementary batch to those started in March. The requirements of these plants will be identical of the suckers started at that time, only they will need more moisture and shade. When Pine Apples commence colouring cease to syringe them, but continue the supply of water at the roots for the benefit of the suckers, and to improve the colour and quality of the fruit more air will now be beneficial; therefore, whenever circumstances admit ventilate liberally, but do not let the temperature fall below 80°, and gradually diminish the quantity of moisture in the house, applying fire heat to maintain the temperature at night at 70° to 75°.

Peaches and Nectarines.—When the fruit is gathered from the earliest house the trees should have all the ventilation practicable, as trees long subjected to early forcing have a tendency to over-development of buds, or rather to mature so early as to be liable to start into growth prematurely, especially the early varieties. All growth not required for fruiting next season or for extending the trees should be cut out and any lateral growth kept closely pinched, as it is important that the foliage have full exposure to light and air to mature the buds properly, and it is equally important that it be kept clean and healthy by employing the syringe or engine, and apply water sufficiently to the inside borders. Trees ripening their fruit should be kept duly watered both as regards the inside and outside borders, but a moderate atmospheric moisture will be sufficient, and may be obtained by occasionally damping the borders on fine afternoons, but the fruit must be kept dry or it will be deteriorated in appearance and quality. In succession houses former instructions must still be attended to—i.e., syringing the trees frequently to keep down red spider, and tying in and regulating the shoots. Remove any leaves that shade the fruit too much, so that the influence of sun and air may colour them equally from the apex.

Cherry House.—As soon as the Cherries are gathered spare no effort to eradicate red spider by syringing twice daily, and if there be any black fly (which, like every other kind of insect, appears in plenty this season) destroy it by fumigation. Open the house fully, and

when the trees are free from aphides remove the lights altogether. Keep the borders thoroughly moist.

FLOWER GARDEN.

Press forward the propagation of spring-flowering plants, such as Arabises, Aubrietias, Daisies, Violas, Primroses, &c., according to requirement. Transplant Wallflowers, and sow Stocks of the Brompton and Queen varieties for blooming next spring. Choice Carnations may now be layered, and pipings of the same and Pinks inserted under hand-lights on a shady border, inserting in fresh sandy loam. Supply Roses with liquid manure liberally in dry weather, and remove all faded blooms before the petals fall. Choice Rhododendrons and Azaleas should in dry weather have plenty of water to assist in making and completing their growth, and remove all seed pods at once. At this season it will be necessary to run the machine over the grass at least once a week, but should dry weather set in the cutters should be set a little higher so as not to cut too closely. Bents will be found to escape the machine and are a great disfigurement, but they may quickly be cut off with the scythe. Maintain everywhere the most perfect order, taking advantage of damp weather to roll walks so as to keep them firm and smooth. Bedding plants should be encouraged to fill the beds quickly by stirring the soil and removing the blooms if needed. Trailing kinds, such as Verbenas, Petunias, and Tropæolums, should have the shoots secured to the surface by means of pegs, but before doing this the ground should be mulched with short spent material, which with such plants as Calceolarias and Violas is, especially in light soils, a necessity.

PLANT HOUSES.

Greenhouse.—*Kalosanthes* coming into flower should be neatly tied, and as the heads of bloom begin to expand place the plants at the north side of a wall until the flowers open, when they may be moved to the conservatory or elsewhere, and shaded, by which means they will be brighter in colour and last longer. Young plants intended for flowering next season should now be placed out of doors in an open sunny situation, and kept there until the beginning of September, which will solidify the growth and cause them to flower freely. *Salvias* for winter flowering may be placed in the pots in which they are desired to flower and be plunged in ashes, securely staking the plants. *Veronica salicifolia* is very useful for autumn decoration, and to keep the plants dwarf and induce a free disposition to flower the pots should be plunged in ashes in a sunny situation, and the plants well supplied with water and liquid manure when the pots are filled with roots.

Poinsettias.—Cuttings that were inserted some time ago will be rooted and should be potted, not giving them larger than 4-inch pots at first, using turfy loam, with a little leaf soil or well-decayed manure. After the plants are well established ventilate freely, and assign them a light position to arrest their disposition to become tall and thin. Cuttings for successional flowering may yet be inserted, and if kept moist they strike freely in a frame with a gentle heat without shade. Cuttings of the equally useful *Euphorbia jacquiniæ-flora* should be potted as soon as they become rooted, using similar soil as advised for *Poinsettias*; and when they are advancing well pinch out their points to induce them to break. The earliest plants as they fill their pots with roots should at once be placed in 6 or 7-inch pots. Water must be carefully supplied until the roots have taken to the fresh soil.



KNOWLEDGE OF BEE CULTURE.

WITHIN the last dozen years greater efforts have been made to spread a knowledge of apiculture than were made for more than half a century before in England and other countries; and what have been the results? A wider and deeper interest is taken in the subject, and a greater desire for knowledge has been created. In these times of extensive emigration to the British colonies, United States of North America, and other countries, it

appears desirable to extend a knowledge of apiculture throughout the country. To know well how to manage bees profitably is worth very much to working men living in rural districts. Many such men who are versed in bee-keeping would not give the annual average profits from bees for the rents of two or three cottages such as they live in. We shall doubtless hear reports of great and wide-spread success, and the story of the value of bees to the community will be better told and confirmed. It is known that in some colonies, and in certain districts of both North and South America, bee-keeping is an unfailing source of income to those who understand and practise it. The thousands of barrels of honey containing from 1 to 3 cwts. each that find a market in England every year tell us of busy people in countries rich in honey.

The Bee-keepers' Association and some county associations kindred in character and objects are making laudable efforts to teach apiculture. These associations are rising in public estimation, and becoming stronger financially every year. Much honour is due to the Rev. H. R. Peel, Hon. Secretary of the Bee-keepers' Association, who labours indefatigably to awaken public attention to the importance of bee-keeping.

Two years ago I wrote on the appointment of a professor of apiculture. The question of the country being ready for a professor was asked, and also if a man qualified for the work could be found. Those questions were answered as fully as it was thought desirable then. We have made considerable advances during the last two years, and it appears to me now that a new departure or fresh advance should be made as soon as the authorities will sanction it. Would you appoint one or two professors? Two. One for England, and one for Scotland and Ireland; both would have plenty to do. Have we any men amongst us ready for the work? Yes, I think we have two well qualified; but I hesitate to point them out by name, though I fancy no harm would be done to anybody by mentioning the names of the two gentlemen who appear to me most qualified as professors of apiculture. Mr. William Raitt of Blairgowrie I would nominate for Scotland and Ireland, and Mr. Frank Cheshire for England. Perhaps they would not accept such appointments if they were made. Both are advanced and enthusiastic bee-keepers, and good lecturers and instructors. Both have much knowledge to impart, yet something to learn for themselves, and, if they receive and accept the appointments, something to learn for the nation. Such language does not disparage the persons named, for all bee-keepers have much to learn, and this will be true of the most enlightened apiarians for generations to come. The reader is, I daresay, ready to ask why I mention the subject, and why be so officious as to name individuals without consent or solicitation. The truth is I am anxious to help bee-keepers, as I always have been, and I think it is desirable to have two competent and efficient men appointed and well paid to teach the nation the practice of profitable bee-keeping.—A. PETTIGREW, *Bordon*.

UNSETTLED POINTS.

A PARSIMONIOUS old farmer whose Clover fields were visited by our bees sorely felt that his fields would have been richer without them, and so convinced was he that his butter was impoverished by our bees that he trod to death all he possibly could, and threatened to use the horse roller when the bees were at work. On mentioning this to Dr. Lindley forty years ago, he said, "the old farmer was a blockhead," but that did not settle the question. Had the farmer just cause for complaint? If the 20 or 40 lbs. of honey gathered by bees from his Clover fields daily had been left in the flowers would his cows have yielded more and richer milk? This is a question which I have not been able to answer, and therefore so far as I am concerned it will remain unsettled. In hot weather flowers that yield honey do so constantly; and if not gathered by bees it is carried off by the atmosphere in odours that may be smelt. All honey thus carried off is lost to bees and their owners, as well as to farmers and their cows. The question now mooted is more easily understood than answered satisfactorily. Though difficult of solution it may be well to think about it. White Clover and Trefoil (*Lotus corniculatus*), are the only pasture flowers that I can think of that yield honey to bees. Bees are of great service to farmers and others in their orchards and gardens, and in fertilising field Beans.

Another point settled in my mind fifty years ago is still questioned by some apiarians is this, Do bees alter and improve honey after it is gathered? It appears to me very strange that any advanced bee-keeper should remain in doubt on this point for a day. If any apiarian will honestly task himself to settle the point he will soon have ample evidence that bees do make honey

proper at home after they have gathered the crude and raw materials from flowers. Many other bee-keepers are as familiar with this fact as I am. A sample of honey was brought to me the other day for my opinion of it. It was evidently a mixture of crude and perfect honey. I told the gentleman what it was and how it was mixed. It had been taken from the combs by an extractor before half of it or thereabouts had been converted by the bees into honey proper, and thus the mixture was effected.

Another point disputed is the advantage of preserving and using old combs. It is said that if the honey be extracted and the combs preserved for future use a great saving is effected or larger profits realised. This is the sum of the arguments of one school of apiarians. There is doubtless some truth and reason in it. On the other hand there are apiarians, equally honest and enlightened, who think that old combs are disadvantageous to bees—almost always overloaded with pollen, or, in other words, too many cells filled with it. Sometimes affected with foul brood and producing smaller bees and fewer in number than young combs. The question of young combs yielding larger bees than old ones cannot be questioned. Hives with young combs are, generally speaking, the most prosperous; comparatively exempt from disease, with bees of full stature and development. We hold combs are old enough at the end of their second working season.—A. PETTIGREW.

TRADE CATALOGUE RECEIVED.

Corry, Soper, Fowler & Co., Finsbury Street, London, E.C.—*Trade List of Horticultural Sundries and Garden Requisites.*



* * All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Pelargonium Trusses Decaying (*F. J. Olton*).—If the plant is in other respects healthy, we think the injury has been caused by drip. Trusses too large and dense, as the one you have sent, are very liable to decay from an accumulation of water, which saturates the upper portion of the stem on which the flowers are borne.

Calvary Clover (*Mrs. Rawson*).—Your letter has been forwarded to Mr. Brierley, who kindly offered a few seeds or a plant to a Perthshire correspondent, who has not yet sent her address. We know Mr. Brierley has not more than half a dozen plants, but possibly he may be able to procure more seeds. We forwarded your letter because you were the first to allude to this Clover in the late discussion.

Black Fungus on Vines (*D. L. O.*).—There is no live fungus on the leaves, but signs of mycelium in the tissue. The moment you perceive fungus apply sulphur, which will destroy it. You would probably find Ewing's mildew composition serviceable, and we advise you to try it, using it according to the directions on the bottle. You can obtain it from Messrs. Ewing & Co., Eaton Nurseries, Norwich, or from dealers in horticultural requisites. We should be glad to hear of the results of this application.

American Blight (*Keswick*).—A small wineglassful of paraffin well mixed in a gallon of soapsuds and applied to the affected parts with a brush will destroy the insects and not injure the trees—at least this has been the result in our case, but we have heard of different effects, due perhaps to the imperfect mixing of the two fluids, or to imperfect application. The dressing should be well scrubbed into the crevices of the bark where the insects abound. Stronger dressings can be applied after the leaves have fallen from the trees, and the trees then should be thoroughly cleansed.

Enriching a Vine Border (*Old Subscriber*).—Unless we know the state of the Vine border and Vines we cannot answer your letter. If we mistake not you sent us some foliage and a bunch of Grapes a short time ago that indicated the soil in which the Vine was growing was too rich, and we advised a dressing of lime for the border. You now ask for particulars for making the border richer, and these we will give you if you will enable us to comprehend the condition of the Vines, and how the border was made and has been managed. In the absence of this information we cannot give you sound advice.

Sowing Seeds of Spring Flowers (*G. H.*).—As was stated at the time in answer to a correspondent, Wallflower seed should be sown in April for producing fine plants for flowering early in the following spring. The plants raised from seeds sown now will be necessarily small; ours were transplanted a foot apart a fortnight ago. Forget-me-not seed should be sown at once, and Silene seed early in August, the plants to be subsequently thinned out, and

those removed transplanted 6 inches apart in rows a foot asunder, so as to become strong and of sturdy habit before winter.

Melons Cankering (*A Subscriber*).—Melons are very liable to canker in some soils, and especially light soils. Your treatment as to removing the side growths when quite small is correct; the method of the "old grower" we have also adopted with equal success. Foliage so thinly placed that the sun can act on it, and not injured by rough handling, generous support such as may be afforded by frequent mulchings and copious supplies of water, with liquid manure occasionally, and never allowing a drop of water to fall within an inch of the stems of the plants, are the means we adopt to prevent canker, and with a judicious system of ventilation we succeed in our object. The plant is *Saxifraga ceratophylla*.

Nectarines Falling (*S. W.*).—Either the root-action of the trees is defective or they have not been given the support that is necessary for the sustenance of the crop, or, what amounts to the same thing, the crop is too heavy for the trees. Have you examined the border with the object of ascertaining whether the soil is moist or not 2 feet below the surface? If it is at all dry there apply water copiously, and follow with liquid manure. In all probability much of the old border needs removal and the roots placing in fresh soil. The particle of fungus you sent had crumbled almost to powder. We do not think there is anything to be alarmed at. Give the border a good dressing of lime, pointing it lightly in; it cannot do harm to the Vines, and may do good.

Cucumbers in Frames (*F. M. S.*).—You ought to have prevented the overcrowding of which you speak by pinching the growths in a young state, and stopping the shoots immediately the fruits were formed. You must now prune the plants, but proceed gradually, removing about a fourth of the superfluous growths one day, and so on on succeeding days. Do not remove the large leaves alone, leaving the growths, but thin out the latter where overcrowded, and healthy uninjured foliage must be left on those remaining. To complete the pruning at one operation might give a serious check to the plants. We are constantly pinching our Cucumbers with the finger and thumb, and rarely remove portions more than 2 inches in length. This prevents overcrowding, while the plants receive no check and are very fruitful.

Thinning Tomatoes (*Idem*).—Unless you desire fine specimens for exhibition, it will only be necessary to remove any fruits that may be likely to be deformed, and there are generally such in very large clusters. It is quite impossible for us to say how many you ought to leave on a bunch, as this depends entirely on the condition of the plants and the support that you give them. We have frequently seen clusters of a dozen fruits and more, and all found room to swell to a large size, but they could not have done so if the plants were not healthy and well supported. By trying a few experiments in thinning you will lose nothing and gain information that we cannot so well impart in this column. The leaves should not overshadow the bunches.

Exhibiting Grapes (*E. M.*).—The proper class for exhibiting the Mill Hill Hamburg is the "Any other black variety class" than that provided for Black Hamburgs, as these are distinct varieties. Exhibitors are, however, left very much at the fancy of judges in cases of this kind, as some judges would disqualify the Mill Hill Hamburg in a Black Hamburg class, and others would admit it.

Wireworms in Vine Border (*Yorkshire Rector*).—These when in large numbers often do much injury to young Vines. They were in the fresh turf that was employed. The only means we can suggest for extirpating them is to bury plentifully Potatoes and Carrots in the soil and examine the baits frequently, and destroy all the wireworms that are caught. We know of no better means of clearing land of this pest than by planting it with Potatoes. We should syringe the Vines lightly twice a day in bright weather, as it can be done without injuring the plants, and if this does not induce growth we fear you will have to plant fresh Vines in suitable soil. Do not, however, destroy the Vines hastily, but try the plan we have suggested.

Planting Bedding Plants (*A Constant Subscriber*).—We prefer planting on dull days or in the evenings of hot days, but it is often imperative to continue planting throughout the day even if the weather is bright, and when this is the case it is often equally imperative to water the plants at once, as many if left unwatered until the evening would sustain much injury. Plants well established in pots, and not dry when planted, sustained no injury by being put out during a sunny day, but some other plants, such as Ageratums, Heliotropes, and Verbenas, turned out of boxes and their roots more or less disturbed, would receive a check if so planted.

Destroying Woodlice (*R. L.*).—There are various ways of destroying these pests, the most wholesale plan being to place some pieces of boiled potatoes near to the plants they infest and cover with a little hay, and in the morning pour boiling water over the hay, so that the baits must be laid where no injury will accrue to the plants or their roots by the scalding water. Another plan is to wrap a boiled potato in a little hay very lightly, and place in a flower pot laid on its side near to where the woodlice congregate or commit their depredations, and the following morning shake the pests from the hay, in which they will be secreted about the bait, into a bucket of boiling water. Repeat for a time, and the pests will be reduced so as to do very little injury. In frames, pits, and houses much help is afforded by toads, they devouring great numbers; but they are not much use in houses having the plants upon shelves and stages to which they have not access. Parsnips boiled nearly soft, cut into slices, and dressed with arsenic form deadly baits. These, if placed where the insects abound, will reduce their numbers considerably. It is, of course, necessary to so place the poisonous baits that no accident can possibly arise by their misuse.

Gloxinias and Begonias Unhealthy (*Regular Subscriber*).—When correspondents state intelligibly, as many do, the treatment to which plants have been subjected that fail to give satisfaction they very frequently, without knowing it, indicate the cause of failure, and enable us the better to suggest a remedy. You afford us no guidance whatever in that respect. The appearance of the Gloxinia leaves suggests that root-action is defective, and the plants have not had the support they need; but whether the evil is the result of unsuitable soil or injudicious watering, it is impossible for us to determine. If the plants are in very large pots they have probably been overwatered, if in very small pots the roots have most likely been too dry at some time, and the fine roots have shrivelled. We are assuming the plants have been grown in a proper temperature and under suitable atmospheric conditions, though it is possible they may not have been. The same remarks apply to the Begonia, with this important addition that the corm may have been, and probably was, in a diseased state when potted. If the whole of the leaves are like the one you have sent, we doubt if the plant can be brought into a healthy state. A temperature of 60° to 65° at night, a moderately moist atmosphere, light shade for bright sun and judicious application of water, are the essentials in Gloxinia culture, and also Begonias, except as regards temperature, which may be 10° lower.

Orange Tree Unhealthy (*J. Watson*).—Imperfect drainage and a sour soil, caused by too much water, or from giving only a little now and then, but never enough to thoroughly moisten the ball of earth, or the brown scale may have closed the pores of the leaves and sucked out the sap. Any of the above will cause the Orange to throw off its leaves. You will determine for yourself which of the above causes are applicable to your case, and adopt a mode of treatment the opposite you have followed to effect a remedy. In your case we would turn the plant out of the pot, take away all the loose soil and as much soil from between the roots as it is possible to do without injuring them with a blunt-pointed stick, cutting off any decayed roots at the same time with a sharp knife. But if the roots are very much decayed, wash all the soil away from them, take away all the decayed parts, cutting well into the quick. Prepare a clean pot sufficiently large to prevent the roots from being cramped against the pot sides, but not larger than just to contain the roots comfortably. Place a large crock on the hole in the pot; and if that be small, make it larger with a hammer. Put for a 12-inch pot 3 inches of smaller crocks at bottom of pot, or let the drainage occupy one-third of the depth of the pot, and on that place a little moss, or, what is better, half an inch of cocoa-nut fibre. Pot lightly, yet filling up all the crevices between the roots, and keep the neck of the plant well up, for the Orange, like the Camellia, soon becomes sickly when the roots are buried. Use three parts turfy loam and one-fourth leaf mould, with a little rough sand intermixed. If the plant is infested with scale, paint with a brush all the shoots with a solution of Gishurst compound at a strength of 8 ozs. to the gallon of water. Should you have the convenience of a hotbed at a temperature of from 75° to 85°, your plant will be much benefited by being plunged there until it breaks into leaf, and none the worse if kept there until the wood is formed. The top heat may range from 65° to 85° for about six weeks, then it should be lowered so as to gradually harden-off the plant for the greenhouse—its proper place. If the plant be straggling or the shoots weak, cut them well back when the buds begin to swell, for the sap is then on the move and roots are beginning to form. Syringe gently twice a day—morning and evening—and keep the soil in the pot rather dry at first, giving more as growth progresses. If you have no hotbed, place the plant at the warmest end of the greenhouse, sprinkle it lightly morning and evening with tepid water, and although it will be longer before growth commences than by the former plan, yet it may possibly recover. The after-treatment of the Orange is to pot in March, adding a little rotten manure to the compost mentioned before, and to keep the leaves and stems clean by frequent sponging with a weak solution of soft soap and water.

Gilbert's Handlights (*A Yorkshire Amateur*).—The best reply we can give you is the following reference to this useful appliance, which was written by a practical gardener ten years ago:—"Amateur gardeners with large ideas and small means have long been in want of something, not so large and expensive as a frame, in which they could raise a few seeds of the less hardy kinds of plants not requiring a stove heat. We have tried a number of contrivances, but none have pleased us better than those formed of wood, which, thickness for thickness, is at least four times more effective than bricks in keeping out cold. The old handglasses were very useful for the purpose we have named, and very useful, too, for protecting Cauliflowers, Lettuce, and outdoor Cucumbers, but they are expensive and very liable to breakage. Mr. Gilbert, gardener to the Marquis of Exeter at Burghley Park, has devised a hand-light quite as cheap as, and from the sides being formed of wood more effective as a protector than the wood or iron and glass handlight, while it is equally portable and less liable to breakage. The glass slides in grooves for the purpose of giving ventilation and attention to the plants, and it can be lifted or elevated as readily as any ordinary handlight. It is, in fact, a miniature two-light frame 18 inches square, with two pieces of glass sliding in grooves, instead of the ordinary glazed sashes. For protecting purposes we have a decided preference in favour of wood and glass as compared to pottery and glass, and we know not why, but plants seem to thrive better under the one than the other. We can recommend Mr. Gilbert's as a good and very neat protector, likely also to be useful in many other ways."

Olive and their Uses (*Emigrant*).—You have not sufficiently stated your object, but the following information may be of some service to you. The Olive (*Olea europæa*) is supposed to be originally from Asia. It grows wild in Syria, and is now naturalised in the south of France, Italy, and Spain, where it is found in hedges and thickets. The culture of the Olive is one of the principal commercial resources of the countries of Southern Europe. The Olive is from 15 to 20 feet or more in height, having the growth of a bushy tree; its flowers are small and whitish, and its fruit is an oval drupe or plum, of a greenish, whitish, or violet colour, with a stone in the centre, and it is in the exterior flesh that the oil is contained. There are several varieties of the cultivated Olive. The long-leaved is that which is generally grown in the south of France and Italy, and the broad-leaved is mostly grown in Spain. From the former the finest oil is obtained; and the latter, which is nearly double the size of the other, produces an oil of a strong rank flavour, not at all appreciated in this country, though eaten with great relish in Spain. The oil is obtained by pressure. In November, when the fruit is fully ripe, it begins to redden, and when gathered is carried to a mill and bruised, the stones being set at such a distance that they do not crush the nut of the Olives. The flesh covering the nut, and containing the oil in its cells, being thus prepared, is put into bags made of rushes and moderately pressed, and thus is obtained in considerable quantity a greenish semi-transparent oil, which, from its superior excellence, is called virgin oil. The pulp, after the first pressure, is moistened with water, and again pressed; and this oil, though inferior to the first, is of good quality and fit for table. The pulp is again broken to pieces, soaked in water, and left to ferment in large cisterns, and is again pressed; but the oil from this pressure is of a very common description, and is generally used for making soap and for other manufacturing purposes. Olive oil may be said to form the butter and cream of Spain and Italy. It is very nutritious, and is very extensively used as an article of food, and there can be no doubt that it is more wholesome in warm climates, and more congenial to the human constitution than butter.

Names of Plants (*A. D.*).—A spray so fragile and tender as that of an Achimenes enclosed in a letter was not likely to arrive in good condition. It was simply a shapeless mass when it reached us, hence cannot be named.

Returning Swarms (*T. K.*).—When a hive with a partially filled super unfortunately swarms it is best (if the swarm be not returned) not to allow the super to remain, and for two chief reasons:—1st, The bees at their departure carry off a considerable quantity of honey in their honey sacs. This gives room in the body of the hive for the reception of all unsealed store left in the supers. This carrying-down is almost uniformly a sequence of swarming during super-filling. 2nd, The thinned population having much brood to cover can ill afford the loss of heat the super occasions. Remove, then, the super, and either keep it in store till the colony recovers its strength, or give it at once to another colony whose supers may be filling. Swarming in this disappointing

fashion may occur to the most careful and experienced, but as a rule it is the result of faulty management at the time of supering. If the brood be arranged so that the ripest occupies the centre while young larvæ and eggs are found in the outer combs, the bees are unlikely to swarm, because the hive body will be continually furnishing space to the queen for ovipositing. Returning a part of a swarm as you suggest is quite undesirable. In the first place you spoil your swarm, and next you make casting from the parent stock almost certain. If you determine to return the bees in any way return all of them, previously taking off the supers and arranging brood as indicated, at the same time carefully excising all queen cells. This latter operation cannot be accomplished with any certainty without most watchful scrutiny, as the passing of a single royal cradle will be likely to make your cure the beginning of new misfortunes.

COVENT GARDEN MARKET.—JUNE 21ST.

THERE is practically no change in the tone of business, but the supply of Strawberries has much increased. All classes of outdoor fruit continue plentiful, and there is no quotable alteration in prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Grapes	lb.	2 0 to 4 0
Apricots.....	box	2 0 2 6	Lemons.....	case	15 0 20 0
Ditto	"	1 0 2 0	Melons	each	3 0 5 0
Cherries.....	lb.	0 0 0 0	Nectarines..	dozen	6 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges	100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches	dozen	15 0 20 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	6 0 8 0	" dessert	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	45 0 50 0	Strawberries	lb.	1 0 3 0
Gooseberries	½ sieve	3 0 0 0	Walnuts	bnshel	7 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus	bundle	3 0 6 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	100	1 3 1 6	Onions.....	bushel	3 0 0 0
Beet, Red.....	dozen	1 0 2 0	" pickling	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes	bushel	2 6 3 6
Capsicums.....	100	1 6 2 0	" Kidney.....	bushel	3 0 3 0
Carrots, new	bnshel	1 0 1 3	Potatoes, new	per lb.	0 1 0 2
Cauliflowers, new	dozen	3 0 4 0	Radishes....	doz. bunches	1 0 0 6
Celery.....	bundle	1 6 2 0	Rhubarb	bundle	0 4 0 6
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria	bnndle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	lb.	0 3 0 0
Garlic.....	lb.	0 6 0 0	Spinach	hushel	3 0 0 0
Herbs	bunch	0 2 0 0	Tomatoes	lb.	1 0 0 0
Leeks.....	bunch	0 3 0 4	Turnips, new.....	bunch	0 6 0 0



POULTRY AND PIGEON CHRONICLE.

THE SHORTHORNED BREED OF CATTLE.

(Continued from page 503.)

WE will now give a brief account of the herd of Mr. Charles Colling, called the Ketton herd of Shorthorns, as it may be interesting and serviceable to some gentlemen and farmers of the present time, especially those whose opportunities of obtaining experience have been few. History relates that these animals were of great size and substance, with fine long hind quarters; the space from the hip to the rib was long, but any imperfection likely to occur from the extreme length and proportion of this part was corrected by points sought for—namely, the broad back and high round ribs. The shoulders of the male animals were upright, and the knuckles or shoulder-points were large and coarse, but this defect was not so apparent in the females. The general contour, or side view, was stately and imposing, but their superiority consisted in their extraordinary propensity to fatten. On handling the skin was very loose and pliant, and felt remarkably mellow and kind, being covered also with mossy soft hair. Mr. C. Colling was distinguished above all other breeders of his day by a peculiarly fine discriminating touch, which enabled him to judge of the quality of the flesh and its tendency to fatten, to which, in connection with good judgment in other respects, his superiority and success as a breeder were mainly attributable.

It is said that the colour of the Ketton Shorthorn varied greatly—red, red and white, roan, and also white, being found in the same

type and style of animals, and in all cases of close affinity there was a great tendency to white. Many versions are given of this peculiarity, but the most probable one is the notorious fact that many of the best herds of the period and in the neighbourhood of Ketton were white with red ears and red spots on their necks—viz., the Grilington, Barton, Barningham, Studley, and others, and to some of these the pedigrees of the Ketton herd can be traced. One writer of importance states that the original Shorthorns were a hardy strong-constituted race of animals, as will be gleaned from the fact that the writer's grandfather kept thirty cows, and had only one cowhouse, which held but two cows, and was occupied only by those which had most recently calved, and they again were turned out to give place to others when newly calving. All the rest remained out during winter (be it remembered this was in a northern climate). Those giving milk in the winter were kept on hay in the meadow field near the farm house, and the remainder were kept in the meadows in different parts of the farm. The whole of the young stock were reared out of doors except young calves for a few months. The speed, or quarter-ill, was the only complaint they were subject to, which, from ten to eighteen months old was frequently very fatal. Now this is just what we may expect as the loss attendant upon such a system in almost any part of England, but it by no means describes the loss of condition in the animals, and the consequent restricted production of milk, if not of other diseases; therefore the hardihood of these animals by no means proves the advantage of keeping them under such fatal and primitive conditions. It is further stated that this herd was closely allied and descended from the Studley bull mentioned in the Shorthorn Herd Book, many of them being large fine-looking beasts, and were excellent milkers.

In breeding Shorthorns it is frequently repeated that we should breed only from such as in themselves are perfect. This, however plausible in theory, will be found untenable in practice, for it may be asked, Where do you find the first parents? A perfect and uniform-shaped beast that lays its fat on every point in equal proportions is extremely desirable, so as to have no excess in one point to the disproportion of another; but in order to accomplish this desirable object we should first become acquainted with the defective points in the female, and then select a male animal for mating possessing those points in great perfection, and thereby ensure and effect an improvement in their progeny. Upon this principle hangs all the necessary knowledge for improving the shape of animals, but in making all our selections we must never lose sight of inclination or disposition to fatten—the prominent feature of the Shorthorns. Still we must not omit the knowledge or inquiry as to the parentage of the animals we intend mating for breeding purposes, for the defects of some previous generations will assuredly crop out—by breeding back as it is called—in the future progeny to a greater or less degree according to circumstances, the prevention not being quite within the power and discrimination even of experienced men. Improvements have often been anxiously sought for by crossing with other breeds, and many valuable specimens have been exhibited; but we ask, What breed is there that can improve the Shorthorn? We have seen many extraordinary animals produced from the first cross with the West Highland Scot or Aberdeen breeds exhibited as fat stock at Christmas at the metropolitan and other exhibitions, which sometimes have proved superior for slaughter at a given age to the pure-bred Shorthorn; but this fact must not be allowed to delude a breeder of Shorthorns to think that he can improve his pure-bred stock by any such means.

The observations we have been making refer almost entirely to a period before the practice of registering breeding stock commenced, except by private memorandums kept by the breeders themselves. About sixty years ago, however, Mr. Whitaker, a celebrated breeder of that period, together with some other eminent Shorthorn breeders, having agreed together by putting Mr. G. Coates in the front, determined to bring out a Shorthorn herd book, which has since been called "Coates's Herd Book." Although the idea was by no means generally supported by breeders of the period, yet it cannot be questioned that as time wore on the movement and practice did exercise very beneficial influence upon the success of the breed. We accept it as an acknowledged fact as being beneficial in various ways, but more especially to the breeders, for previous to the commencement of registration in Coates's Herd Book, Shorthorn breeders had to rely entirely in the selection of animals upon personal merit and full points of the animals only. Generally speaking, at the early period it was extremely difficult for breeders to sell animals which were ill-looking, either bulls or heifers, at anything beyond butchers' values. The Herd Book system has, however, changed this state of things whether for good or for ill, probably some of both, for

the rules of the registration are now a certain number of crosses with pedigree stock is sufficient to admit animals to entry in the Herd Book, but without any reference to personal merit or full points possessed by the animal at all. This we feel is a defective arrangement when it is found that animals of mean appearance and wanting in various important points of conformation and otherwise can be admitted into the Herd Book entirely through their ancestry and pedigree, and thus entirely ignoring the old and honoured saying, that "like begets like;" and unless this acknowledged truth could be perverted by the action of blood alone, we cannot be sure of our progeny without admission to the Herd Book, being made by a standard of a certain minimum number of points and enforced, as well as the pedigree, for this in the case of Channel Island cattle has been in force for a number of years, and very properly too. But in the case of Shorthorns, however desirable it may be, we cannot quite see our way to admission by a certain number of points as well as blood pedigree, for the simple reason and in consequence of the enormous number of breeders claiming entry for their animals every year, and spread as they are all over the kingdom. It is clear, therefore, that the possession of a certain number of points could not be insured by examination by a committee if established for the purpose, but it may be possibly effected by a certificate from qualified persons giving a guarantee.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The preparation and seeding the land for late Swedes and hybrid varieties of Turnips may still be continued, but particularly with the Red Mammoth or early Grey Stone Turnips, for these are far superior to and in our practice have entirely supplanted all the Tankard and quick-growing round Turnips, such as the Norfolk White and the Green Globe. These are so tender and are so short-lived in their season and quality, that it is very difficult to consume them in proper condition, for they either become woolly or decay, and are only required as feeding for bullocks or fattening sheep; but then they are far inferior in value compared with Cabbages or the Grey Stone Turnips, which are of fine quality, and will keep sound and firm for months after being ripe or full grown. The cutting of grass for hay with the mowing machine will still be continued in the fields in the late districts, and in the parks and meadows in all the districts, except in the water meadows set out with high-backed beds: these latter must still be cut with the scythe.

The new mode of saving hay by the use of the exhausting-of-heat is still in its infant state, and we fear that the prejudices of some or many of the farmers will continue to delay the progress of an invention second to none in our agricultural catalogue. There is, however, an amount of detail to be carried out with care and intelligent discrimination, which we fear will be wanting in many cases, for a time at any rate, until the advantages arising from the process and its requirements are better understood; for, like the wheels in nearly all machinery, if one cog is absent the wheel goes for nothing, and just in the same way, if one item of detail in the practical management of the new system of making the hay is absent, there will be small chance of securing good hay. We will, therefore, make a few observations for the purpose of encouraging and directing the home farmer in the use of the required tackle and the treatment of the grass when cut as to the most beneficial and economical mode of carrying out the details. First of all, if the weather is ever so fine the system is still an improvement upon entire sun-drying, and that only; for it must be remembered that the best of hay will be that which heats most in the rick, if the heat is under control and constantly reduced and kept within 100° as registered by the thermometer; and the fact of lessening the labour of tedding and turning in the field or meadow by early carting to the stack is real economy, irrespective of the waste caused by the loss of some of the leaves and smallest blades of grass, which often occurs, especially when the sun is severely powerful. As fast as the grass is cut, if the crop is a heavy one of broad Clover with large and succulent stalks it should be carefully tedded with the machine daily in fine weather, and the same with park and pasture grass. But there will be this difference: for the broad Clover, Dutch or Alsike Clover, and Sainfoin will be fit for the stack on the third or fourth day after cutting, and the park and meadow the second or third day. If, however, the weather should turn showery in the interval, then it is that the most judgment and discretion will be required, for if the hay has been less than half made, and becomes wetted with rain, once turning and a few drying hours will make it fit for stacking, although there may be water contained in some of the curled leaves of the grass or partially made hay. This circumstance if the weather is fine only for a few hours, and especially if it is windy, must not deter the home farmer from carting it to the stack; for although under former circumstances the hay would be mouldy and quite spoilt in the rick, the water which would have spoilt the hay, under the new system of heat and its exhaustion becomes vapour, and is commingled and combined with the heat, and both, if exhausted by the new process at the proper time, leaves the hay in the best possible condition.

Very proper and well-explained conditions will no doubt be sent by the makers of the machine called the Exhaust Fan and the tackle

connected with it to the purchaser. But, nevertheless, a few remarks from us may be acceptable to the home farmer. First of all, the bottom of the rick should be composed of something which will sink down close when loaded with the hay, such as Bean or Pea haulm, refuse, chaff, or cavings of corn straw may be used to keep the hay off the ground, which should be in a dry position on commencing the rick. A common four-bushel sack well stuffed with straw, and gradually drawn upwards as the hay accumulates, will form the chimney in the centre of the rick, to be carried up about the height of the proposed eaves; connected with this should be the wooden trough or tube, about 6 or 8 inches in diameter, reaching to the outside of the stack, and about 3½ or 4 feet from the ground, to which the exhausting fan will be attached during the time of use. On the other side of the rick must be placed a small tube to allow of the introduction of the thermometer for ascertaining the amount of heat, which should be exhausted when it amounts to 100°, but in corn stacks when it reaches about 60° or 70°. Now this process of exhausting must be continued several times a day until the hay becomes nearly cold if water has been found in the hay when carted; but if secured in fine weather when the hay has been permanently reduced below 100°, no injury, but rather benefit, will be derived from allowing the natural progress of cooling to continue without further trouble.

The size and shape of the ricks is of consequence. The hay rick should be made square, and not to exceed 18 or 20 feet each way; corn ricks, however, we should prefer to be made round, about 10 feet from the chimney or centre to the outside. One thing, however, must be considered with regard to corn, that it receives no benefit from heating like hay, but it is of some benefit to Oats or Barley, which will often heat, to prevent any excess; for when Clover stalks are grown and mixed with it, which will often make it difficult to say for certain whether it will heat too much or so much as to injure the grain, in which case the chimney should be made in the rick, and treated in the same manner as for hay. If, however, we speak of the northern or mountain districts where fine strong crops of Oats are frequently grown and can scarcely ever be harvested quite dry, the new system will form quite a revolution in style of stacking, for both straw and grain can be saved in a superior and more certain condition than it has ever been done before. The style of corn ricks which we have for the past fifty years advocated and carried out, may now be readily approved by many who have previously failed to see the necessity of it.

POULTRY AND PIGEONS

POULTRY NOTES.

WE observed at the Show of the Bath and West of England Society at Cardiff that the poultry were in far better plumage than adult birds usually are in June. Probably the absence of both great cold and great heat since the last moult has much to do with this.

WE have before us several good schedules of forthcoming shows. The breeding season is over, and those who have been able to keep their birds in good trim up to the present time may safely show them. Summer shows held in tents and generally lasting only a single day do not injure poultry. The Bedfordshire Agricultural Society this year meets at Luton on July 19th. Both the poultry and Pigeon schedules are on a liberal scale. There are six separate classes for chickens. The Secretary is Mr. E. Blundell, Luton; and the Judges Mr. T. C. Burnell and Mr. M. Leno. The Huntingdonshire Society holds its Show two days later at St. Neots. The classification is not extensive, but the prizes good. Dorkings have four classes—viz., for pair of adults, pair of chickens, single cock, and pair of hens, with three prizes in each. The Secretary is Mr. Dilley, Market Place, Huntingdon. The name of the Judge is not announced. Buxton will have its first poultry Show on August 2nd and 3rd. The prizes are fair, and the classification good. We observe that there is a class for "Redcaps," the useful Derbyshire breed, about which we wrote not long ago. The Secretary is Mr. T. W. Varley, Corbar Road, Buxton. The Judges are—for poultry Mr. Teebay, and for Pigeons Mr. Ludlow. On August 17th a first show will be held at Aberavon. There are fourteen classes for poultry, with fair prizes. The Judge is Mr. T. C. Burnell.

SOME weeks ago we expressed some belief in the efficacy of the ointment remedy for gapes in chickens. Further experience strongly confirms this belief. We have had almost an entire absence of the disease in our yards this season, save in the case of one brood of Polish chickens, which we omitted to anoint. The result of experiments made in the great Knighton yards is, we are told, exactly the same. The disease has only appeared in one or two broods, and those the very few, out of many, which had been overlooked or not anointed immediately on removal from the nest. The

germ, whatever it be, of the future plague is communicated to the chick very soon after it leaves the shell.

WE have just been presented with a new and very ingenious egg case for holding an egg which has been at all crushed or crooked in incubation towards the time of hatching. It is, of course, oval, of metal, largely perforated so that air and warmth can reach the egg, while the hen's weight cannot press upon it. We have not yet had an opportunity of trying it, but fancy that with care it may aid in saving many a chick. We say "with care," because, of course, the hard casing would prevent the actual exit of the chicken from the shell, so any nest in which it is used must be well watched.

WE hear from various sources of the season being a bad one for breeding Pigeons. Others attribute the failure of the hens to lay to the same cause that we lately did—viz., the unusual warmth of last winter, which caused them frequently to lay when unpaired, and exhausted them.

WE have often wondered how by degrees tail-less fowls were produced, for we have never seen till this year any birds produced from ordinary fowls which had any real tendency to be tail-less. Of course, Cochins and some other Asiatics have a very different development of tail to most birds, but tail they always have. We have this year been astonished to find a chicken from pure White Dorkings which up to the present time (it is two months old) promises to be perfectly tail-less, like Manx fowls. We have never possessed a tail-less bird, and have for generations bred our White Dorkings in purity. This chicken has all the characteristics of the White Dorking in comb, colour, and toes, and will, therefore, if it grows up perfectly tail-less, be really a curious sport of Nature.—C.

A VALOROUS HEN.

ON opening the door of my poultry house on Thursday morning I was astonished to find a dead cat lying with its head out of the little door the fowls go out and in at, and the floor strewn with feathers, showing there had been a struggle in which the cat had got the worst of it. I had a Brahma hen and chickens in a nest covered with a bucket, which was upset and one of the chickens out of the nest and sitting in a corner, but seemingly neither it nor any of the other chickens were hurt. The mother seemed none the worse either, and she and the chicks took their breakfast as usual, but neither the cock nor the other hens would come out of the house for any food for a long time, and at night the latter took refuge in a shed instead of going into their house as usual. There was an account in the *Daily News* last week of a fight between a cat and two blackbirds, in which the cat was prevented by the birds from capturing a young one. It is beyond my comprehension how the hen killed the cat, as it was in good condition.—PRESTWICK.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1882. June.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 11	30.024	55.4	43.4	N.W.	55.4	62.8	46.2	111.7	42.8	0.927
Mon. 12	29.816	55.5	49.0	N.W.	55.6	61.0	47.0	117.7	45.8	—
Tues. 13	29.983	51.2	45.2	W.	55.3	58.6	41.5	91.6	38.6	0.220
Wed. 14	29.837	58.5	53.3	S.W.	54.9	62.4	47.3	102.7	48.0	—
Thurs. 15	29.879	57.9	50.9	W.	54.6	63.3	48.5	116.8	43.6	0.012
Friday 16	30.204	57.1	50.4	N.E.	54.6	67.0	41.8	121.4	36.9	—
Satur. 17	30.149	61.5	52.7	S.	55.7	68.8	45.6	117.2	40.7	0.092
	29.985	56.7	49.7		55.2	63.4	45.4	111.7	42.3	0.351

REMARKS.

11th.—Generally fine, cool, overcast at times, showers at 0.30 P.M.
 12th.—Cool, but fine and bright; shower of large hailstones 9.50 A.M.
 13th.—Cold and cheerless; high gusty wind; rain commenced 6 P.M.; wet evening.
 14th.—Windy, but fair throughout, and bright latter part of day.
 15th.—Dull morning; slight shower 1.20 P.M.; afternoon and evening fine and bright.
 16th.—Fine, calm, bright sunshine, and warm.
 17th.—Fine and bright, windy at first, calm evening.
 Dull, windy, and cool; temperature lower than for nearly a month, and below the average.—G. J. SYMONS.



29th	TH	Gardeners' Royal Benevolent Inst., Aldersgate St. Richmond,
30th	F	[Farningham, Mansion House, Hereford, & Harrow Shows.
1st	S	Reigate and Crystal Palace Rose Shows.
2nd	SUN	4TH SUNDAY AFTER TRINITY.
3rd	M	
4th	TU	National Rose Society's Show, South Kensington.
5th	W	Royal Botanic Society's Summer Show. Nuncaton, Teddington, [and Bexley Shows.

SOME GOOD NEW PLANTS.

NOVELTIES in plants, fruits, or vegetables become more numerous every year, and so long as the present demand continues will the firms in this and other countries endeavour to meet it by importation from abroad or raising and selecting at home. The numbers of new plants annually added to the lists of those in cultivation are particularly remarkable; and though, perhaps, such as possess sterling qualities that will obtain them a permanent position amongst garden favourites are comparatively few, yet some are continually coming into notice which are not likely to be neglected while England retains her present love for horticulture.

Collectors have visited all parts of the world, have climbed the loftiest mountains, penetrated into the densest forests, and boldly faced the fiercest heat in search of floral treasures, which are dispatched to this country by thousands, nay, almost by shiploads, yet the demand still continues and probably increases. Fortunes have been expended in this branch of commercial horticulture, and doubtless in the majority of cases the interest upon the capital has been good, though plant-hunting is to some extent a lottery, and the difficulty now is to find a district that has not been already fully explored by previous collectors. Attention in recent years has been especially centred on the Orchids, and these have been imported in enormous quantities, as the numerous metropolitan sales testify. Fine-foliage plants, including Ferns, have also had a large share of attention; but really useful new flowering plants, exclusive of the Orchids, do not appear so frequently as is desirable. This is surprising, for of Crotons, Dracænas, Dieffenbachias, Palms, and Ferns there is abundance, and some of these have proved so sportive in the hands of cultivators that garden forms are being constantly obtained of more or less merit, and stove-flowering plants seem to be the most needed now. For the greenhouse, conservatory, or other cool houses we have an almost unbounded range of variation in flowering plants, but it is not so in the stove, and in very few establishments will a really brilliant display be found in this structure at any time of the year, except when Orchids are arranged amongst the other plants. It is true we have the bright orange-scarlet *Ixoras*, the rosy *Dipladenias*, the yellow *Allamandas*, *Clerodendrons*, *Begonias*, *Gesneraceous* plants, and numbers of plants with white or fragrant flowers; yet still they fall short of the cooler-house plants in variety and brilliance generally, and any addition to their ranks that is likely to prove of substantial utility is especially welcome. One of these, which

will undoubtedly become a great favourite when its merits are duly recognised, is

IMPATIENS SULTANI.

This, unlike a large proportion of the novelties in the plant stoves of England, we do not owe to any of the nurserymen, though some of them will probably reap almost as much advantage as if they had introduced it, for plants have been lately distributed from the Royal Gardens, Kew, to several firms. Its appearance at Kew was due to a mere accident, and shows how many valuable plants may be lost by the want of a little thoughtful care. A case of plants had been received there from Zanzibar, and a portion of the soil in this was turned out under a stage in one of the propagating pits, where it was undisturbed for some time, when amongst the weeds, which generally appear plentifully in a short time, was noticed this *Impatiens*. It was carefully potted and grown on, and when it flowered its full beauty was revealed. It was at first believed to be either *Impatiens Walleriana* or a near ally of that species, but Sir Joseph Hooker has now determined it to be an undescribed form, and has named it in honour of the Sultan of Zanzibar. It is of very compact bushy habit, with narrow, ovate, slightly tapering leaves, the flowers being about 1 or 1½ inch in diameter, and very bright rosy-scarlet in colour, a peculiarly distinct but most effective hue. They are produced singly in the axils of the leaves, especially towards the summit of the stems, but so freely that a well-grown specimen appears to be quite a ball of flowers. A plant at Kew which had been blooming continually for several months was cut back, fresh growth being encouraged, and now it is flowering again almost as freely as before. One specimen has been also tried in a cool house, but does not thrive so well, the blooms being smaller and lighter in colour than they are in the stove or similar temperature. It can be increased either by cuttings or seeds. A specimen was shown at the last meeting of the Royal Horticultural Society, but strangely enough did not appear to attract the attention of the Floral Committee.

SELAGINELLA PLATYPHYLLA.

The plumose *Selaginellas* include some of the most graceful of the genus, and amongst them such species as *S. hæmatodes* are especially valued for their large handsome fronds. To this type the new *S. platyphylla* might be assigned in a horticultural point of view, as it produces large feathery fronds, though of a texture and colour more suggestive of the *S. Martensii* group. When shown at the Royal Horticultural Society's meeting early in the present month it attracted much attention, and a first-class certificate was at once awarded to its introducers, Messrs. J. Veitch & Sons, Chelsea. Undoubtedly it deserves to be considered as one of the most distinct in cultivation, the fronds having the appearance of being flattened out by heavy pressure, though there is no disagreeable rigidity in the habit, a large panful of the plant being a valuable addition to any fernery. Probably cultivators will soon have an opportunity to procure this, as most of the *Selaginellas* are readily increased.

APHELANDRA CHAMISSONIANA.

Last year Mr. W. Bull of Chelsea flowered a beautiful species of *Aphelandra*, which was then named *A. punctata*, in reference to the marking of the foliage, but since then Sir Joseph Hooker has identified it as the *A. Chamissoniana*, described by Nees some years ago. Like so many of the *Acanthaceæ* it is a native of South Brazil, whence seeds were obtained from

which the plants now referred to were raised. The leaves are lanceolate and tapering, very dark green, with a white or light greenish white central band, the lateral veins being similarly light, and contrasting strikingly with the dark ground; thus, even when out of flower the plant is attractive. The flowers are bright yellow, in close terminal heads, each bloom having at the base a recurved deeply serrated bract of similar colour to the flowers. These impart a very distinctive appearance to the head, and a large specimen well flowered would be very handsome.

BEGONIA ANNIE LAING.

Amidst the multitudinous varieties of these beautiful summer-flowering greenhouse plants it may seem almost invidious to select one of special merit. Yet one may be named, even at the risk of provoking a retort that there are twenty others equally good. Among all that are excellent, is there a rose-coloured variety to surpass Annie Laing? Is there one that produces larger, better formed, more wax-like flowers in greater profusion than this does? Is there one of the colour—clear rose—possessing the above qualities, and at the same time a better grower of more agreeable habit than this? If so it will be well to know what it is, so that all growers of these plants can include it in their collections. As a plant for the decoration of the conservatory the above-named Begonia must rank as one of the best, and a large specimen well cultivated and clothed with its large and lovely blooms cannot be passed without admiration, even if it is surrounded by other superior varieties of the same type of the great and valuable genus of plants to which it belongs.

ROSE WHITE BARONESS.

Last week "D., Deal," directed attention to a "perfectly double" flower of Mabel Morrison that had been sent to him. Had he been at the evening fête of the Royal Botanic Society last Thursday he would have seen many plants bearing dozens of splendid blooms that he might have regarded as double Mabel Morrises, exhibited by Mr. George Paul. On each side of the White Baroness were groups of Madame Lacharme, but the blooms of the latter were neither so large, double, nor clear as those of the former. The Rose under notice originated at Cheshunt as a sport from Baronne de Rothschild, but its merits did not at the first appear to be fully appreciated, and plants were sold at a moderate price. As seen at Regent's Park the blooms were very fine—far more double than those of the prototype are usually seen, and although not pure white they were less tinted than those of several plants of Madame Lacharme referred to. This fine group of large symmetrical double light Roses attracted much attention, and the "White Baroness" will henceforth be in greater demand than ever.

VIOLET SWANLEY WHITE.

Humbler flowers must not be omitted. Violets are favourites with all, and numerous as the single varieties are, a really good double white form was until recently a desideratum. Now, however, thanks to Messrs. H. Cannell & Sons of Swanley, we have in the Swanley White a variety which, when produced in good condition, is undoubtedly beautiful. The flowers are extremely full; we have seen them from 1 inch to 1½ inch in diameter, and sometimes one flower contains as many as forty petals closely but symmetrically arranged. To add to its recommendations the fragrance is very sweet and powerful. It must be added that all the flowers are not alike large and full, and it is only by good soil and culture that blooms of the nature indicated can be produced; yet Swanley White is a Violet of promise.

MUSHROOMS FOR THE MILLION.

(Continued from page 464.)

MUSHROOM SPAWN.

WHERE Mushrooms are largely grown, on outdoor beds especially, numbers of the larger specimens that have been left by accident or design to become old, and the laminae or gills have turned almost black, the top of the Mushrooms, the pileus, will assume a warm

brown rusted appearance. This is produced by multitudinous spores, which are eventually shed on the soil. But these spores or seeds never produce Mushrooms directly. They germinate under suitable conditions and produce white cobweb-like filaments, which spread through masses of manure of the proper kind, completely permeating it, and render it mouldy or cottony in appearance by their numerous interlacings. This is the mycelium or spawn, which in a medium congenial to its growth spreads rapidly, and thickens, eventually producing tubercles which develop into Mushrooms. This briefly is the manner in which



Fig. 104.

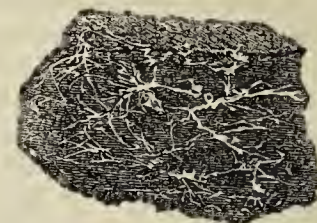


Fig. 105.

Mushrooms are propagated. In the late Mr. Smee's beautiful work, "My Garden," published by Bell and Sons, Mr. Worthington G. Smith, the eminent fungologist, has represented for the first time the spores in the act of germinating (fig. 104), and he has also shown what gardeners term a "lump of spawn," (fig. 105), or the mycelium as it is preserved and used in the culture of Mushrooms.

THE DISPERSION AND GERMINATION OF SPORES.

In the dispersion of the spores of Mushrooms a curious fact may be noticed, and which presumably has not been previously recorded. It is this: When a number of Mushrooms are allowed to mature on the side of a steep ridge, no matter how acute its angle may be, even if the side of the bed is almost perpendicular, all the spores will be distributed on the soil above the Mushrooms, never below them, as we might naturally expect would be the case. After a careful examination of hundreds of Mushrooms not one instance has been found where the spores fell on the ridge below, but they are always cast off in an upward direction, and frequently in such numbers as to form a snuff-like semicircle on the soil above them. Mr. Barter, with his greater opportunities for observation, states that after closely examining thousands of specimens he has never found an exception to the somewhat singular rule mentioned. But the spores do not germinate there, as the conditions are not favourable. They germinate in manure which is of a suitable character as regards its constituents, temperature, and moisture, as is the case in some cattle sheds. Many carefully conducted experiments have been made by scientific men to induce the germination of the spores by artificial means, but it is not known that any authenticated instances of success have been recorded.

MAKING "MUSHROOM BRICKS."

It were easy to describe the manufacture of Mushroom spawn in this form, for the hand that pens these lines has assisted to make numbers of bricks, but it would not be easy to make the process intelligible to those who have no practical knowledge on the subject, and "object lessons" are requisite for the matter to be satisfactorily comprehended. Nor is the knowledge necessary for the great mass of Mushroom growers.

When a man builds a house it is of no advantage to him to know how to make his own bricks, for he can purchase them better and more cheaply; so it is with the vast majority of cultivators of Mushrooms, and beginners especially will find it far more economical to purchase good Mushroom spawn than to endeavour to make it, and fail. After a person has become competent as a Mushroom grower and contemplates cultivating the esculent on a large scale he will have gained experience that may enable him to make his own bricks of spawn, with little instruction from others, or in other words he will be able to turn the information he gains to profitable account. This is the course that Mr. Barter pursued. He first grew Mushrooms and then commenced "spawn-making" on a small scale; and proving equally successful in both the demand for bricks increased, and can only now be met by a supply of thousands of bushels annually. The bricks, it may be stated, are 9 inches long, 6 wide and 2 deep, there being sixteen of these to the bushel. There are other extensive manufacturers of Mushroom spawn, and the supply for home and export purposes amounts to many tons annually. It is to the advantage of purchasers of Mushroom spawn that the railway charges for it are low, as it is transmitted under the lowest scale but one—namely, manure; indeed, the bricks mainly consist of manure in a dried state, which is simply the medium for preserving and conveying the mycelium that produces the Mushrooms. These bricks are composed of soil and manure. When partially dried and in the right condition small portions of "spawn" are inserted, and on being subjected to a genial heat the mycelium penetrates the entire mass. The bricks are then packed in open sheds in a manner that permits the air to circulate amongst them, and when kept cool and dry the mycelium retains its strength and vitality for years. Some idea may be formed of the extent of the trade in "Mushroom bricks," and of the manner in which they are stored, on reference to the annexed engraving of a portion of a shed in a Mushroom spawn manufactory (fig. 106).

THE PREPOTENCY OF VIRGIN MUSHROOM SPAWN.

A singular circumstance remains to be noticed—namely, the prepotency of "virgin spawn," or the mycelium directly produced by the spores. It is well known that the mycelium can be transmitted from brick to brick, and may be so increased time after time, and year after year, but it is by no means well understood that it is more or less weakened by every such transmission. This probably will be "news" to a great number of readers, and in all probability it will afford the solution to some of a difficult problem. There are not many gardeners who have been long engaged in Mushroom culture who have not been perplexed now and then by the comparative failure of a bed. The materials and management were the same as before, and the bricks employed appeared good and were beyond doubt permeated by the mycelium, yet the crops resulting were unsatisfactory, the produce either being small or the beds soon exhausted, or both. It probably never occurred to the cultivators to inquire how far the mycelium had been weakened by inherent exhaustion consequent on a course of unintermittent propagation. This is a very interesting and important question. It is found in practice that to insure "strong" mycelium capable of producing the heaviest

crops of the finest Mushrooms we must go to the original source and procure it as nearly as possible direct from the spores. Nor is it surprising that this should be so; indeed it would be more surprising were it otherwise. Given equal conditions for culture, seedling plants of all kinds are stronger than those raised from portions of pre-existing plants; and further, it will not be disputed that excessive forcing and propagation may result in the degeneration of a species or variety of phanerogamic plants. Indeed if it were not so the old axiom would not have been established that a "strong plant cannot be made from a weak cutting." The same principle applies with at least equal force to the cryptogams; and therefore reasoning by induction alone we have no right to expect strong Mushrooms from weak mycelium. But induction and

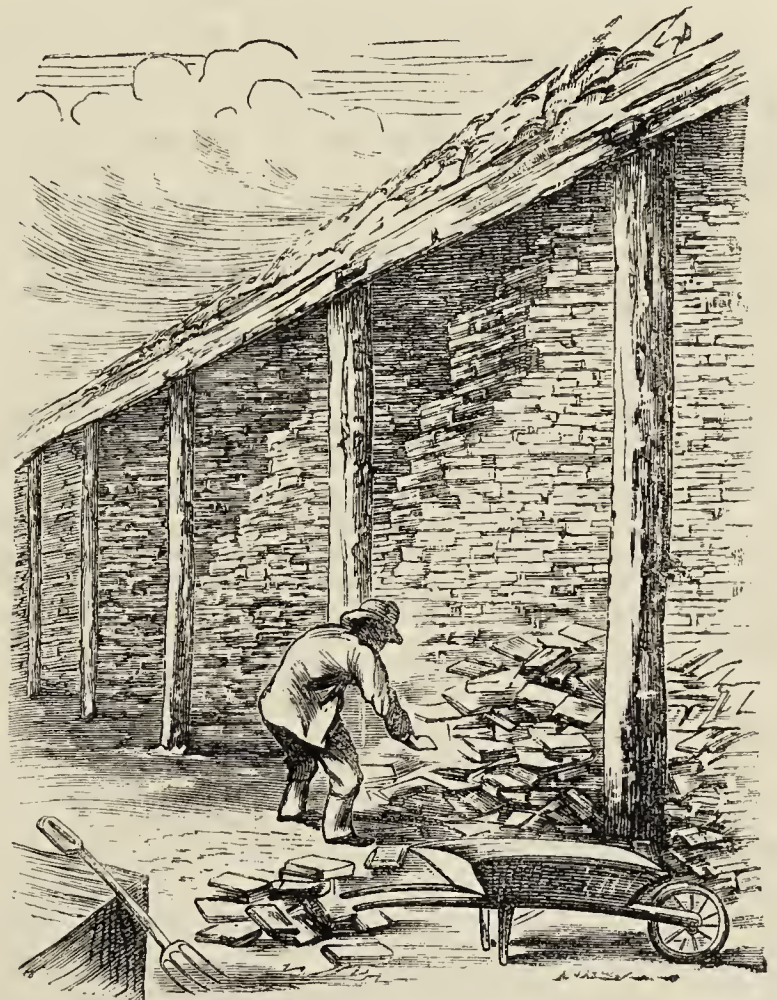


Fig. 106.

physiology aside, we have the evidence of facts in support of the proposition in question, and experience teaches that this aspect of Mushroom culture cannot with impunity be ignored. Mr. Barter is careful never to use spawn or mycelium of more than two generations from the spores—that is to say, he finds it to his advantage to give a guinea for a small portion of virgin spawn not equal in bulk to half a crown's worth of the manufactured article for the purpose of impregnating a few bricks. It is from these bricks—the first remove—that the stock is raised that he himself uses and sells, bricks made for those who insist on a "cheap" article being permeated with mycelium a generation or more older, and consequently weaker. It will produce Mushrooms, and under favourable conditions good crops, but not such profitable beds and splendid produce as he never fails to obtain, and which he knows by experience it is impossible to obtain from weak second-class spawn that never ought to be distributed. Every gardener

and every Mushroom grower ought to have no more difficulty in procuring "bricks" of the first quality than they have in obtaining new and good vegetable and flower seeds.

As pertaining to this aspect of Mushroom culture, numbers of persons cannot fail to have noticed how fat and fleshy those Mushrooms are that spring up spontaneously from decaying hotbeds in which no spawn was inserted, and they have been at a loss to understand the cause of the excellence of the produce. The chief reason is because they have been produced from mycelium direct from the spores, aided by steady growth under the influence of low temperature in the autumn.—J. WRIGHT.

(To be continued.)

RED SPIDER ON VINES.

FROM one of our vineries we have been cutting Grapes for a month or more, and to have them ripe thus early much of fire heat had to be applied early in the season. This was had from a flue, and heat of the kind is always likely to encourage the increase of red spider. Some time ago this pest appeared on some of the leaves nearest the flue, and we did not wish it to spread any more than we could help, but how to check it without injuring the fruit was a question requiring some consideration. Flues cannot be painted with any mixture like pipes, and they are altogether more conducive to spider-rearing than the hot water. However, our old friend the syringe was brought into action, clear water being syringed on to them without stint. This has been most effectual in removing the spider, and it has done no harm whatever to the Grapes. In ripening they assumed a beautiful coat of bloom, the water passing freely from the surface, and after the most severe syringing the bloom remained as perfect as before.

When Grapes are ripe many are afraid to syringe them, under the impression that they would be injured, but such is not the case. Vines are not now so generally syringed as they were years ago, and in my opinion this accounts for the rapid way mealy bug and other insects have increased in many vineries, and where this or any other insect exists few appliances will keep them more in check than the syringe.—A KITCHEN GARDENER.

LEEDS FLOWER SHOW.

JUNE 21ST, 22ND, AND 23RD.

SUCCESS with horticultural exhibitions is so largely dependant upon the condition of the weather at the time they are held, that unless a society is favoured in that respect the most strenuous efforts of a competent secretary and an enthusiastic committee well supported by exhibitors are not sufficient to overcome the evil effects produced by a wet day. Rain continuous and drenching has a most unsatisfactory influence upon the receipts at the gates, for few persons except the boldest and the most ardent admirers of flowers will venture to face the discomfort of promenading through dripping tents and over saturated turf. It is for this reason that a society to be thoroughly well established and in a measure independent of the weather must have substantial outside support—that is, a good list of liberal subscribers, and then if the exhibition is held under favourable auspices a balance can be secured to provide for future disasters. Most unfortunately, however, for the Leeds Horticultural Society, it seems as if they are never to be favoured with such happy circumstances. For some years past the opening day of the Exhibition has proved extremely wet, the unpropitious weather being also frequently prolonged over the second or third days, with the result of a comparatively poor attendance of visitors. The customary ill fortune attended the Show this year as regards the greater portion of the first two days, the third being a little finer and the attendance better in consequence. Much credit is due to the Society for their perseverance, and perhaps with continued well-directed efforts they may yet overcome the difficulties that have hitherto opposed their progress. The Show itself amply testified to the spirit still animating the horticulturists of the neighbourhood, for the exhibits were both numerous and of excellent quality, a really handsome display being provided, creditable alike to the Society and the exhibitors; and so long as this interest continues there is hope of success in other respects.

Two large marquees were devoted to the exhibits, the principal one containing the groups arranged for effect, the stove and greenhouse plants, fine-foliage plants, Ferns, and Pelargoniums, in all of which classes the competition was good and the plants satisfactory. The other marquee of nearly similar size was devoted to the Orchids, cut flowers, fruit, and other exhibits of more or less importance.

Briefly noting the chief features of the display, the first demanding attention being the

Groups.—The Leeds Show has attained a considerable degree of fame for the groups of plants arranged for effect there staged in competition; and though there has been recently some falling-off in the number of exhibitors, much taste still characterises all the contributions in the two classes provided. At the Show under consideration there were four entries in the open class for a group occupying a space not exceeding 300 square feet, and three in that for amateurs of half that size. The larger groups differed remarkably in the styles of arrangement, each possessing merits worthy of notice and defects that should have been avoided. Mrs. Smith, Moorfield House, Headingley, was placed first with an extremely bright group, comprising a large number of flowering plants, such as Pelargoniums, Spiræas, Begonias, Calceolarias, &c., some richly coloured Coleuses, with Palms and Ferns sufficient to render it well filled and graceful without being crowded or formal. The centre consisted of fine Palms, and the margin of Ferns and Panicum variegatum. One side of this group, that facing the entrance to the tent, was to a great extent spoiled by two large specimen plants—namely, a variegated Yucca and a Cordyline at each corner, and tilted forward to show the head of the plants. This had a very incongruous appearance, quite inconsistent with the general design, and nearly lost the exhibitor the prize, which in other respects was so well deserved, for in effectiveness the group was not approached by any other staged. J. Barran, Esq., M.P., Leeds, and Mr. R. Simpson, Selby, showed creditable groups, but one was rather too formal and scarcely contained sufficient colour, the other having a most tasteful margin but much too heavy in the centre, a number of Palms and other fine-foliage plants being somewhat crowded. The second and third prizes were divided between these two exhibitors. The fourth prize was accorded to the Liverpool Horticultural Company (Manager, Mr. John Cowan), for though the plants included, chiefly richly coloured specimen Crotons and Dracænas, were, in a cultural point of view all that could be desired, they were quite unsuited for graceful arrangement, producing an extremely heavy effect, and some unavoidable gaps between the specimens gave an unsatisfactory vista of large pots and supports.

In the amateurs' class three groups were staged, two being very pretty, and occasioned the Judges some difficulty in determining which should take the lead. Eventually, however, the premier prize, a timepiece value £10, given by the Mayor of Leeds, Alderman Tatham, was accorded to Mr. Grosvenor Talbot, Leeds, for a charmingly tasteful group of elliptical form comprising abundance of colour, Zonal Pelargoniums being prominent, but agreeably toned with Ferns and Palms. Mr. G. Gelder, Headingley, was placed second, and the only fault that could be urged against his group was a somewhat rigid formality in design. It was perfectly circular, and rose as evenly to the centre in semi-globular form as if it had been clipped round with shears. White flowers and fine-foliage plants were the chief features, a few Lobelias being tastefully employed near the margin. This group was much admired by many visitors, and if the prize had been offered for the most symmetrical arrangement, it would undoubtedly have deserved the premier prize. Mr. Sagar-Musgrave, Red Hall, Shadwell, secured the third position, but the group was not marked by any special merit.

Stove and Greenhouse Plants.—In the principal class for sixteen specimens the prizes were very liberal, £18, £12, and £6 being offered as first, second, and third respectively. Three collections were staged, all including healthy vigorous plants; but for freshness, brightness, and general excellence that from Mr. James Cypher of Cheltenham was considerably superior to the others, and well deserved the premier award it received. Amongst the flowering plants were excellent specimens of *Ixora Williamsi*, *I. floribunda nana*, both of moderate size, but flowering profusely; *Anthurium Schertzerianum* and *Dracophyllum gracile*, the latter very evenly trained. *Croton Williamsi* and *C. Queen Victoria* were admirably coloured, several large Palms being also staged, with a beautiful example of *Dasyliion acrotrichum*. Mrs. E. Cole & Sons, Manchester, had specimens of great size, the Palms being particularly fine, but several rather rough Azaleas weakened the collection. Mr. J. Barran followed with healthy plants.

In the amateurs' class for six stove and greenhouse plants only one collection was entered—namely, that from Mr. G. Gelder, which included satisfactory specimens of moderate size. For three specimens the competition was much keener, half a dozen collections being staged. Mr. G. Talbot easily won the chief position, his best specimen being a *Stephanotis*, about 5 feet high, trained in globular form, and extremely well flowered. A good example of *Clerodendron Balfourianum* was also noteworthy. Mr. Gelder took the second position, having two beautiful plants of *Allamanda neriifolia* and *Ixora Fraseri*.

Pelargoniums.—The display of these was extensive and beautiful, being almost a repetition of that at York in the previous week, but without the numerous bronze and tricolor varieties shown there. The Show varieties were superbly represented. Messrs. Lazenby and Son, York, secured the leading prize in the open class for twelve with even, fresh, profusely flowered specimens, very compact, and as healthy as could be wished. Mr. C. Ryland, Ormskirk, was a close second, the blooms being individually large, though less numerous. F. W. Tetley, Esq., Leeds, took the third position with smaller but fairly well-flowered plants. The last-named exhibitor won chief honours in the amateurs'

class for six Show varieties, having Pericles, Mary Hoyle, and Brigantine in good form. W. L. Joy, Esq., Weetwood Mount, Leeds, followed with well-grown, vigorous plants, but not bearing such fine flowers as the preceding. Fancy varieties were not so largely shown, Messrs. Lazenby, Rylance, and H. May, Bedale, being the prizetakers in that order. Zonal varieties were also well shown by Mr. Tetley.

Orchids.—Though not very abundant these were all distinguished by their excellent healthy condition, and some specimens were admirably flowered. For six plants Mr. J. Cypher secured the chief position with beautiful little specimens of *Epidendrum vitellinum*, *Saccolabium guttatum*, and *Odontoglossum vexillarium* amongst others of similar quality. Mr. W. N. Champion, Halifax, was second, having *Odontoglossum Alexandrae* and *Cypripedium barbatum* flowering freely; and Mr. W. Bateman gained the third position for small plants. For three Orchids the competition was close, Mr. F. W. Tetley taking the lead with praiseworthy examples of *Aerides Fieldingi* and *Cypripedium barbatum*. Mr. J. Barran's second-prize collection included *Dendrobium thyrsiflorum* and *Odontoglossum citrosimum* flowering profusely, Mr. W. Bateman again taking the third position, *Vanda suavis* and *Laelia purpurata* being his best plants. Mr. T. Simpson secured the chief position with a single specimen *Dendrobium nobile* superbly flowered; Mr. F. W. Tetley was placed second with a good *Odontoglossum vexillarium*, and Mr. Grimshaw third with *Cattleya Mossiae*.

Roses were shown extensively, and the quality of many was surprisingly good. For forty-eight distinct blooms Messrs. Paul & Sons, Cheshunt, were first; the Cranston Nursery Company, Hereford, second, and Mr. May third. The names of the varieties need not be given here, but all were in good condition. For thirty-six varieties of Roses the positions of the preceding first two firms were reversed, but with Teas Messrs. Paul & Sons recovered their former place. In the other classes many fine blooms were shown, and altogether the Roses were both good and highly interesting. At the end of the tent were some splendid Rose plants in pots from Mr. May and the Liverpool Horticultural Company, but the latter, although fine, healthy, and well-grown, were deficient of bloom. Fine-foliage plants and Ferns were also well represented, most of the specimens staged being extremely healthy.

Tuberous Begonias and Gloxinias made a fine show along one side of the fruit tent. Many fine varieties were staged, and excellent culture was evident in many, especially those from Messrs. R. Simpson & Sons, N. W. Champion, Rev. G. E. Gardner, and Mr. J. Harrison.

Bouquets were most attractive, Mr. Cypher coming to the front here, as he generally does in this department. The stands of cut blooms of stove and greenhouse plants also shown were greatly admired, and deservedly so, as they were both numerous and good.

Fruit.—Collections of fruit were numerous and good. For four dishes Mr. Clayton, gardener to J. Fielding, Esq., Grimston Park, was first with a very fine Queen Pine, grand Muscat Grapes, a well-grown Melon, and Violet Hâtive Nectarine. Second, Mr. W. Wallis, gardener to Sir H. S. Thomson, Kirby Hall, York, with good Black Hamburgh, a very small white Grape, Peaches, and Nectarines. The third prize was awarded to Mr. Silver, gardener to A. Fawkes, Esq., Farnley Hall, Otley, his Muscat Hamburgs being particularly fine. The next class was that for six kinds of fruit. Here Mr. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, was a good first with splendid Black Hamburgs, a fine Lockinge Melon, Peaches, Nectarines, &c. Mr. Wallis was second, and Mr. Silver third. In another collection of four varieties Mr. Pratt, gardener to Lord Hill, Hawkstone, was first with the finest Black Hamburgs in the Show, and other good fruits; Mr. Faulkner second, and Mr. Clayton third.

In the Grape class for one dish of a white and one of a black variety, three dishes of each, Mr. J. Padgett was first, his Black Hamburgs and Muscat of Alexandria being very good; the second lot from Mr. Wallis was a little smaller, but the third wanted finish. For a single dish of black Grapes Mr. Silver was first with very fine Muscat Hamburg, this exhibitor showing this choice variety in excellent condition throughout; Black Hamburgs from Mr. Wallis were second, and the same variety third. In the white class Mr. Clayton came well to the fore with exceptionally fine Muscats; the second and third lots being Foster's Seedling, and although good were far behind the first. For the heaviest bunch of Grapes a very rough unripe bunch of Foster's was first, the second being a good bunch of Muscat Hamburg from Mr. Silver.

Pine Apples were not numerous or very superior. Peaches and Nectarines were barely ripe as a rule, but well-coloured fruits were shown by Messrs. Silver, Wallis, Pratt, and Faulkner, and others competing. Melons were not plentiful, but good in shape, and Mr. Mann was first with a scarlet-fleshed variety, and Mr. McIndoe second. In the class for green-fleshed varieties Mr. Ambrose Walker was first with a fine seedling, a cross between the old Becchwood and Golden Perfection. The fruit was large, finely netted, and exquisitely flavoured. Mr. Clayton was second here with a fine fruit of Eastnor Castle, Mr. McIndoe being third. Figs and Cherries were fairly good, and Strawberries were exceedingly fine; Messrs. Pratt, Wallis, F. W. Tetley, and W. L. Joy showing grand samples.

HIEROCHLOA BOREALIS.—This, the Northern Holy Grass, ought to be grown in every garden where cut flowers are wanted in early spring.

It flowers freely and is very elegant, its beautiful panicles resembling those of a miniature Briza, and its powerful scent, like that of new hay, adds to its attractions. It does not require any particular treatment. I first had it in a small pot, with a strict injunction to plant it in peat near a pond or lake; but as I had neither peat nor lake I planted it in garden at once. This rests on 14 feet of sand, and is about 800 feet above sea level, and exposed to every breeze. The plant commenced growing at once, and now covers a space several feet square, and had hundreds of flowering panicles on in spring. It commences flowering early in April, and lasts for several weeks.—JAMES PERCIVAL.

NOTES AND QUERIES.

IF it is a fair question to ask in the *Journal of Horticulture*, I want to know if there is any place in London where we can procure damaged tobacco that would be suitable for fumigating glass houses with. I am troubled with a little white fly, which is especially fond of plants with strong-scented leaves, such as Lantanas, Tomatoes, and *Aloysia citriodora*; it also injures *Ageratums*. I am also sorry to find the thrips has begun to attack my Muscat Hamburgh Vine, and I know there is nothing better to eradicate these pests than a thorough good fumigating, followed by another about three or four days after. I do not much care about the prepared tobacco paper, and want to obtain some genuine damaged shag; I have an idea that such tobacco ought to be obtainable from some of the warehouses near the London Docks, for I have no doubt many a stone of tobacco is injured by salt water in its transit, and would be just as good for fumigating purposes as the best Wills' birdseye.

Talking of tobacco, the *Nicotiana affinis*, of which I sowed seeds in April, is certainly well worth growing. Oddly enough, from the same packet of seeds two quite distinct types of flowers are produced. One flowers when not more than 1 to 1½ foot high, with short tube and a well-formed flower about the size of a large Primrose. The other has a tube at least 5 inches long and has pointed petals, and is almost the size of a white Petunia. Both are sweet, but the latter never opens fully till after four o'clock, and always shuts up in bright sun. I have some in blossom now in the original seed pans, treated exactly the same way, and while one is flowering from 1 foot the other is 3 feet high before it expands.

To illustrate the differences between the two types of *Nicotiana affinis*, I send by this same post a few flowers of each in a tin box. I am rather doubtful how they may travel. As far as the fructification is concerned they seem nearly the same. The flower tube is very brittle, especially in the longer one, and I should not be much surprised if the tubes were broken in transit.

I also send specimens of *Linaria bipartita*, which I have never grown before, and it seems a very pretty annual, and two flowers of a Foxglove from a plant which I sowed from seeds sent me from the Royal Horticultural Society last year, and which has more than usually large bells and is very floriferous.

I wish some more standard and definite rules could be laid down for thinning Grapes. I am surprised at the quantity of berries I still have to cut out from the bunches of Muscat of Alexandria, supposed to be a shy setter; but there is no Grape which swells apparently more rapidly after stoning. I have over seventy bunches on a Vine which last year gave me nine, and many of them are more than a foot long. I had to cut from sixty to eighty large berries off one bunch yesterday, which had escaped my eye before owing to its having grown from a late shoot, and was hidden amongst the foliage.

We have had a curiously cold and backward spell of weather the last ten days. It is now nearly Midsummer day, and it has never been above 65°, and often under 60° max., with 36° to 40° at nights, since the first week of the month.—C. P. P.

[The flowers of *Nicotiana* are quite dissimilar, some being more than thrice the length of the others. The Foxglove is very fine, the *Linaria* rich in colour and attractive.]

SCOTTISH PANSY SOCIETY.

THE thirty-eighth annual competition of the above Society, held in the Society of Arts' Hall, Edinburgh on June 23rd, was, notwithstanding the changeable weather experienced before the date of Show, a success in every way. The number of visitors was greatly in excess of that of any previous Show. Many new growers attended, chiefly from the west of Scotland. Captain Halford Thompson, Exeter, brought a basket of Fancy Pansies in pots, which were shown in capital condition considering the distance they had travelled. A certificate was awarded to this exhibit.

Nurserymen's class—twenty-four show Pansies dissimilar: First (the Society's silver medal)—Messrs. Wm. Paul & Son, florists, Paisley, who staged superior blooms of the following:—*Artemis*, Captain Knowles, Alex. Watt, J. P. Barbour, Peter Lyle (seedling); John

Stewart (seedling), dark selfs; Mrs. Galloway (seedling); Silverlight, white selfs; Geo. Rudd, Dr. Campbell, yellow selfs; Miss Barr, Miss Baird, Gertrude, Mrs. James Millar (seedling), Miss Meikle, Mrs. D. Wallace, Mrs. Mackenzie, white grounds; R. Pollock, W. Robin, Dr. Livingstone, J. Buchanan, A. Cameron, A. Henderson, Bailie Cochran, yellow grounds. Second prize—Mr. Wm. Dickson, Paisley, who showed fair blooms of H. A. Hawkins, Mauve Queen, Rev. J. Morrison, Robert Black, dark selfs; D. Dalglish, Sir W. Collins, Thomas Ritchie, D. R. Barr, J. B. Robertson, yellow grounds; Tickler, Jeannie Griev, Captain Speirs, Mrs. Mackenzie, white grounds. Third prize—Mr. J. Ormiston, Ancrum, Jedburgh. Twenty-four fancy Pansies dissimilar: First (the Society's silver medal)—Messrs. Downie and Laird, who had blooms of immense size, brilliant colouring, and perfect quality. The varieties were Countess of Home, James Gardner, May Tate (seedling), Mrs. W. Brown, John Murray, Mrs. Forsyth, Miss Tofts, W. Cuthbertson, Miss Bliss, Maggie Bell, Mrs. J. Cocker, General Grant, Mrs. J. Watt, Mrs. Barrie, Ruby (seedling), Peter Nicol, Mrs. Wolff Murray, Robert Laird, Mrs. Taylor, Catherine Agnes, Mrs. General Grant, and three seedlings. Second prize—Mrs. Taylor, Woodbine Nursery, Corstorphine, with neat smooth blooms of Mrs. Mitchell, J. Grieve, Mrs. E. H. Wood, R. Dunlop, G. Ross, Mars, A. Cuthbertson, Mrs. Jamieson, Maggie Taylor, W. Lawrie, Mrs. Taylor, Jupiter, Nancy Lee, and seedlings. Third prize—Mr. John Ormiston, who had clean blooms of Miss Reeve, Mrs. Ogilvie, Prizetaker, Catherine Agnes, Mrs. Taylor, Robt. Cowan, J. H. Borrowman, Mrs. J. Watt, and James Grieve. Six seedling Show and six seedling Fancy Pansies: First (silver medal) awarded to Messrs. Wm. Paul & Son for blooms of great excellence. Twenty-four bunches of bedding Violas: First—Messrs. Downie & Laird, whose exhibits were one of the features of the Show.

The following are the principal prizetakers in the gardeners', amateurs', and open to all classes:—

Messrs. R. Millar, Paisley; R. Cuthbertson, Corstorphine; D. Findlay, Lennox Castle; J. Stewart, Campsie; A. Borrowman, Beeslack; R. Ritchie, Cresswell; D. Malcolm, Kirkintilloch; J. Ritchie, Denny; W. Storr, Lenzie; J. Black, East Calder; J. Barr, Paisley; W. Paul and Son, Paisley; and Geo. Ross, Laurencekirk, who received the President's medal as the winner of most prizes.

First-class certificates were awarded to Messrs. Downie & Laird for "May Tate" (Fancy); Capt. Thompson, for "Ralph Sanders" (Show); Dicksons & Co., for "Jessie Dunlop" (Fancy); and T. McCombe, Montrose, for "Mrs. McCombe" (Fancy).

TOMATOES BLIND AND DEFORMED.

ON page 467 Mr. Muir alludes to the frequent failures to secure large bunches of Tomatoes on plants grown under glass. He apparently quite realises that this failure to set large clusters is owing to the maintenance of a too damp atmosphere, but does not convey the idea he is aware it is quite possible to secure a good set in a moist atmosphere by artificially impregnating the blooms. We grow Tomatoes in pots in Cucumber, Melon, and Fig houses, and in each instance they are considered of secondary importance, a moist atmosphere being maintained for the primary crops throughout the growing season. Had we depended upon chance fertilisation a partial crop would have resulted: this, too, in spite of having given the preference to well-known free setters. By carefully impregnating the blooms either with a camel's-hair brush, by softly rubbing together the fertilising points of the blooms, or on sunny days by tapping the bunches and thereby distributing the pollen, as we should in the case of Muscat Grapes, we were rewarded with large clusters of fruit in some instances weighing 2 lbs.

The large central blooms are nearly always fasciated, and are followed by extremely ugly fruit. These should be removed as early as possible, thereby much benefiting the remaining blooms and subsequently the fruit. With most varieties, if any of the smaller blooms produce mis-shapen fruit it is owing to imperfect setting; Tomatoes, in common with Grapes and other fruits, requiring a full complement of seeds to be perfect in shape, and I may say in quality also. If smooth attractive-fruited varieties, such as receive the preference at exhibitions, are grown, these, notably in the case of Trophy and its synonym Stamfordian, are had setters and also of comparatively poor quality. There is too much core in them, and an insufficiency of seeds and the pulpy matter that encloses them to please the palate of the lovers of the Tomato, or at all events the connoisseur. When I grew Tomatoes for exhibition and did not relish them Trophy was my model; now the case is reversed, and not a plant of this showy but inferior-flavoured variety is grown. The best variety I have yet tasted is the old Orangefield as grown at Longleat, and not far behind this are seedlings I have obtained by crossing Vilmorin's Early Dwarf with Early Gem in one instance and Keye's Prolific in another. Keye's Prolific if obtained true, Dwarf Orangefield, Earley's Defiance (an improved Large Red), and Conqueror are well adapted for either house or open air culture, and if either of these are grown there ought to be no great difficulty in securing

large clusters. The Greengage is much liked by some, but is rather too tall-growing for pot culture. The most handsome exhibition variety I have yet seen or grown is a seedling named Perfection, which was raised by Mr. Phillips, Deodars Gardens, Meopham, near Gravesend. The cluster I forward to the Editor was the third and smallest on a plant of the Vilmorin's Dwarf, grown in a 10-inch pot.—W. IGGULDEN.

[It is very fine we should have liked to have seen the largest.]

THE FIRST SHOT.

IN my last paper I spoke of the coming campaign, and ventured to express the opinion that we were, if appearances might be credited, on the eve of a fine Rose season. Since then the campaign has commenced, the first shot has been fired, and, if I may judge of the future by what took place then, my ideas are likely to be realised. The struggle will be a great one, and the quality as well as the quantity of the projectiles will be all that could be desired.

The campaign was commenced at Bibbing. Now someone will say, Where is Bibbing? Well, it is a small and usually quiet country village not far from Sittingbourne in Kent, which on Friday was a scene of unwonted animation. The camp of the East Kent Volunteers was pitched there, a goodly gathering of some seven hundred men, and, as usual on such occasions, a goodly camp following—"cousins and sisters and aunts;" and as Captain Knight, on whose land the camp was pitched, is an enthusiastic Rose-grower, the idea was started of holding a Rose show on one of the days of the review. The Rose tent was pitched in his garden, and in it was collected a goodly number of most excellent blooms; for when I say that such goodly Kentish Rose-growers as Mr. Wakley, Capt. Knight, the Rev. H. B. Biron, Mr. Burnside, and Mr. George Mount had contributed to the Exhibition, it might be at once seen that there was no likelihood of a poor exhibition being held. It was of necessity small, for it was confined to the amateurs of Kent. The prizes were not valuable, and the amateurs exhibited more for the honour of the thing—victory, more than for the spoils of the victors.

Mr. W. Wakley of Rainham, whose Roses are well known at Kentish shows and occasionally elsewhere, exhibited a very good box of eighteen, which took the first prize. His stand contained good examples of Mlle. Eugénie Verdier, Exposition de Brie, Miss Poole, Beauty of Waltham, François Michelin, Marie Baumann, Duke of Connaught, Capitaine Christy, Marie Rady, Princess Beatrice, Dr. André, Etienne Levet, Souvenir de Dr. Jamin, a curious claret-coloured, small Rose rarely seen now; Hippolyte Jamain, and Marquise de Castellane. In the class for twelve the Rev. H. B. Biron was first with good blooms of Xavier Olibo, Marie Baumann, E. Y. Teas, Eugénie Verdier, Marquise de Castellane, Duke of Wellington, Duke of Edinburgh, Charles Lefebvre, Marie Finger, Le Havre, and François Michelin. There were several fine boxes of Teas; that which obtained the first prize (Capt. Knight) contained Rubens, Jean Ducher, Laurette, Andrienne Christophle, Madame Hippolyte Jamain, Innocente Pirola, Marie Kruppenheim, Souvenir de Paul Neyron, Devoniansis, and Souvenir d'un Ami. The Rev. H. B. Biron was a good second with smaller blooms. In Class D, Mr. G. Mount of Harbledon, Canterbury, was first with excellent blooms of Marie Baumann, A. K. Williams, Capitaine Christy, Duke of Edinburgh, E. Y. Teas, Alfred Colomb, La France, Lord Macaulay, Charles Lefebvre, Souvenir de la Malmaison, a capital bloom, Madame Gabriel Luizet, and Star of Waltham. But, good as they were, they were not equal to the very remarkable box of nine shown by the same exhibitor; these were really perfect blooms, and not only did it obtain the first prize but also the prize for the best box in the Show, and one of the blooms, Marie Baumann, for the best bloom. It comprised Marie Baumann, A. K. Williams, La France, Baronne de Rothschild, Etienne Levet, Gabriel Luizet, Charles Lefebvre, E. Y. Teas, and Avocat Duvivier. The first prize for six of one sort was given equally to Marie Baumann and Maréchal Niel. The first prize for table decoration of Roses was awarded to Mrs. Biron for a gracefully arranged stand; the first prize for buttonhole bouquets for ladies and gentlemen to Miss Welby. Of course the awards in these classes did not give satisfaction, they never do; but a principle was enunciated in the criticisms upon them which I think worth noticing, as it may lead to a ventilation of the subject. The first prize was given to a graceful and light arrangement both for ladies and gentlemen, a large and handsome one containing twice the number of Roses being rejected; this judgment was considered wrong, on the ground that the decision ought to be given to the best arrangement in fashion at the time, and that as the present fashion is for ladies to wear a large wreath reaching right across the breast, that this rejected one was more in accordance with the fashion and ought to have received the prize. This critique I dissent from. Fashion may be outrageously wrong, and I think it is the business of those who have to judge in such matters not to consider fashion, but good taste. I saw ladies this spring with bunches of a dozen Daffodils arranged as a bouquet for the breast. Had one of them been put up for competition with a graceful arrangement of a few flowers and Maidenhair Ferns I should have had no hesitation in awarding the prize, notwithstanding that the other might have been the very highest "chic," as I cannot give way to the doctrine that "when a thing's the thing, why, of course, that makes the thing the thing." However, these are simply

individual opinions, and I should be glad if some who have studied the matter would give their opinion. Some years ago the fashion was introduced of having holes arranged so that plants were placed in pots and thus came through the centre of the table. Some of us loudly protested against this. Prizes were withheld where it was adopted, and it was very soon found out that the thing was wrong, and the trouble it occasioned gave it the *coup de grâce*. I, therefore, think we are not to be tied by the bonds of fashion, but by the more easy and silken cords of good taste. All the arrangements for the Show were carefully carried out, and the thanks of all concerned are due to Capt. Knight for the encouragement thus given to the flower which his own garden testifies he can grow successfully, and for the hospitable reception given to the lovers of the Rose.—D., Deal.



ALTHOUGH it would be scarcely appropriate to refer in eulogistic terms to the nurseries and gardens which the representatives of BELGIAN HORTICULTURISTS are at present visiting as guests in this country, or to describe the establishments in detail, yet as an item of news we may state that the first visit of our friends was made on Monday last to Mr. Cannell's nursery at Swanley and Mr. Ladd's great plant-growing establishment at Bexley Heath. Both these are distinct typical examples of the industry of horticulture, and quite dissimilar from general nurseries. The former may be described as a manufactory of florists' and decorative flowers, while the latter is an establishment where plants (also fruits) are grown by and for the million, and disposed of in the markets. Both are characteristic examples of trade enterprise. Less than ten years ago there were only wild flowers at Swanley, now there are some thirty houses averaging more than 100 feet long, and an acre or two of frames, all filled with the best varieties of plants; also several acres outside devoted to hardy flowers. After passing through the structures, some wholly occupied with Zonal and other Pelargoniums, others with Begonias, Petunias, Coleuses, Primulas, Fuchsias, Salvias, &c., and after partaking of Strawberries and honey (home-grown), the company, upwards of forty, repaired to the hotel adjoining the nursery, where an excellent luncheon was provided. The chair was occupied by Mr. G. F. Wilson, who in felicitous terms proposed two toasts, "The United Royal Families of England and Belgium" and "Belgian Horticulturists." For the latter Count Oswalde de Kerchove responded in English and French, and was much cheered. On the return from Bexley Heath M. Van Hulle, on behalf of his *confrères*, expressed the gratification they had experienced in visiting the establishments, and thanked all who had contributed to the success of the day. We regret that the pleasure of a drive through the fruit farms of Kent was marred by showers; yet, although these were frequent and heavy, they were not sufficient to damp the ardour of our appreciative friends. On Tuesday they were entertained at a luncheon at South Kensington Gardens. The President of the Royal Horticultural Society, Lord Aberdare, presided, and Sir Joseph Hooker, Drs. Masters and Hogg, with a number of leading horticulturists, joined in the welcome accorded to the visitors. They subsequently visited Mr. Bull's exhibition of Orchids, and next inspected the establishment of Mr. Veitch, with whom they dined in the evening. On Wednesday they visited Frogmore and Cliveden, as representative examples of the large private gardens of England.

— RELATIVE TO FRUIT CROPS IN KENT, it was observed that in the district traversed between Swanley and Bexley Heath—a circuit of about twenty miles, that few or no Apples and Pears were seen, and Plums are very scarce. Bush fruits are more

plentiful, but Currants, of which there are hundreds of acres, are not ripening satisfactorily. The Raspberry fields are more promising, and a good yield is expected. Strawberry culture is largely practised, one grower, Mr. Vinson, having three hundred acres. On Monday last he sent 1300 pecks from Swanley station before breakfast, and in one day has gathered 9 tons 15 cwt. The "pickers" are counted by hundreds, and receive 4d. per peck for their labour. When the crop is good a quick worker will gather nearly forty pecks a day, but this is considerably above the average of their earnings during the fruit-picking season.

— A CORRESPONDENT, "A. B.," would be glad to hear from those who have been recommending SAWDUST, not only for plunging but for striking cuttings, whether the kind of wood it comes from does not make a difference. He thinks the kind which contains turpentine, as that from pitch pine and red pine, can scarcely be good for the latter purpose, and he hesitates to plunge pots in it.

— ON the recent visit of the PRINCE AND PRINCESS OF WALES to Milner Field near Bradford the dinner table on June 21st was decorated wholly with Roses grown by Mr. Anderson, the gardener; and on the 22nd the flowers were entirely Orchids sent by Charles Stead, Esq., and grown in his gardens at The Knoll. There were upwards of a hundred spikes of the following:—*Odontoglossum crispum*, *O. cirrhosum*, *O. citrosimum*, *O. vixillarium*, *Cattleya Mendelii*, *Epidendrum vitellinum majus*, *Cypripedium niveum*, *Phalaenopsis amabilis*, with several *Oncidiums*, *Miltonias*, and *Thunias*. A few *Begonia* leaves were used with excellent effect. The arrangement was most tastefully executed by the Misses Stead, and was greatly admired by the Princess and guests. The Orchids were fine examples of cultural skill grown by Mr. A. F. Gordon, Mr. Stead's gardener. Before leaving Milner Field the Princess planted two trees as a memento of their visit to the owner, Titus Salt, Esq.

— THE WEATHER IN THE SOUTH has lately been inclement and cold for the time of year. On Monday last there was a hailstorm in London, and on the Thursday previous frost in Kent—the tarpaulins on the goods trains from Dover being covered with ice at daybreak. Showers have been very frequent, but while these have been of benefit in gardens they have placed the hay crop in jeopardy, and already a great quantity of produce has been injured and some spoiled. On Tuesday there was a welcome change, the day being bright, and the temperature in the shade 73°; Wednesday was dull but mild.

— WE regret to have to announce the death of MR. ROBERT ARTHUR OSBORN of the Fulham Nursery, which took place at Tonbridge Wells on Sunday last the 25th inst., at the age of twenty-seven. Mr. Osborn was the sole surviving son of the late Mr. Thomas Osborn, and was the sole representative of the business since the death of his mother in 1878.

— WE also regret to record the death of MR. JOHN SHERRATT of Springrove, Biddulph, who died June 20th, aged fifty-three. Mr. Sherratt was formerly gardener at Biddulph Grange, then in the possession of Mr. James Bateman, and was noted as an Orchid grower. Subsequently he began business on his own account, and at the time of his death was head of the firm of Sherratt and Pointon of Biddulph, near Congleton.

— AT a recent meeting of the Royal Horticultural Society a first-class certificate was awarded to Messrs. Laing & Co., Forest Hill, for the new TUBEROUS BEGONIA THE HON. AND REV. J. T. BOSCAWEN. It is a remarkably fine variety, with flowers of great size and very bright scarlet in colour. The petals are broad, rounded, and of good substance, the plant being of vigorous, compact, and floriferous habit.

— "HEAD GARDENER" writes to us as follows on MELONS

AT LONGLEAT:—"They are grown on a different principle to that generally adopted, the plants being fewer in number, but finer crops of fruit than those invariably obtained it would be impossible to find. Only two varieties are grown, these being a good form of Eastnor Castle and the Hybrid Cashmere. Each plant covers an average area of about 13 feet by 10 feet, and carries from ten to twelve fruit. The smallest fruit of the former cut this season weighed $5\frac{1}{2}$ lbs., while the largest weighed 8 lbs. All are beautifully netted and rich in colour when ripe, and though of great size are, as we can attest, of excellent quality. It ought to be mentioned that Mr. Taylor does not aim at growing big fruit for his own gratification, but they must be large to suit the dining-table of his employer. The Hybrid Cashmere is later in ripening, but keeps longer when cut, fruit that has been cut a week apparently being equal to those newly gathered, but, unfortunately, it requires special treatment. The fruits are liable to crack, and the plant will not bear the knife. The variety is not adapted for frame culture, and must have plenty of room in a house. The drying-off process is not practised at Longleat, the plants remaining healthy and clean to the last, and perfect two or more crops. The Melon houses are half span-roofed. Tomatoes are grown on the back walls, and during the season Kidney Beans and decorative plants are grown in quantity about the houses."

— IN reference to WEATHER FORECASTS, it was recently stated in the House of Commons by Mr. Fawcett, in answer to Mr. Birkbeck, that "If the Government supplied telegrams gratuitously to those interested in agriculture it would be impossible to refuse similar applications from those engaged in other trades. There would be little difficulty in securing the object desired. I understand that the Meteorological Office supplies the weather forecasts gratuitously to anyone who is willing to pay the expense of telegraphing them, which is very rarely more than 1s. If, therefore, the farmers in any district jointly subscribed, the expense to each would be very inconsiderable. The forecast might be exhibited at the post office, and in the case of those farmers who resided within the area of free delivery the messages could be delivered at the small extra cost of 3d. for each additional copy."

— UNDER the heading of a CHAT ABOUT ROCKWORK Mr. W. H. Lascelles sends us a communication from which we cite the following:—"We all love rocks and like to imitate them in our gardens, but the materials at our disposal are very few and not easily managed. Brick burrs most of us have had, but do what we will with them we cannot make them look like anything but what they are, so we insert plants thickly, and cover them as quickly as possible. Cork has a rustic appearance, but decays and harbours insects, while the transport of stone from various districts is costly. I have been studying this matter for some years, and think I have at last got suitable material for rockeries. It is in seven colours—black, brown, dull red, bright red, grey, dull yellow, and white. At the Agricultural Hall next month, from July 24th to August 5th, I shall show amongst other things the rockwork I speak of. Some samples I will also send to my place in the Poultry, No. 35, and some to my shop in Bunhill Row, No. 121, so that those who are interested in the matter will know where their curiosity can be gratified."

— A SCHEDULE has been issued by the TOOTING HORTICULTURAL SOCIETY, giving particulars of their first Show, to be held in the Vestry Hall on November 14th and 15th of the present year. The Society has been started under important patronage, and, judging by the long list of subscribers already obtained, there are very good prospects of a satisfactory and successful career. Sixty-seven classes are devoted to plants, flowers, fruits, and vegetables, Chrysanthemums being largely provided for; but with the exception of one open class for forty-eight Chrysanthemum blooms all

are confined to gardeners and amateurs living within a radius of two miles and a half of the Broadway, Tooting. In the first rule of the Society it is stated its object "shall be the advancement and improvement of horticulture in all its branches by means of exhibitions and monthly floral meetings. At the latter all members shall be invited to bring newly imported plants, hybrids, or seedlings for adjudication; also any examples of successful cultivation, or failures, or disease, in order that instructive discussions may arise as to remedies or preventives." Mr. Gower is the Secretary.

CHISWICK AND TURNHAM GREEN SHOW.

JUNE 22ND.

A REVIVAL of the old celebrated Chiswick Exhibitions, though on a smaller scale, must be welcomed by many, and the Society incorporated some short time since in that district seems likely to gain a position of importance amongst others in the neighbourhood of the metropolis that will eventually result in the production of both large and handsome shows. Three have already been held. The first, which might be considered merely as a trial, was arranged in the Vestry Hall, but the second and third were favoured with a far more suitable position—namely, the Royal Horticultural Society's Gardens, which at this season of the year are invariably attractive in no ordinary degree. Last year's Exhibition took place in the large conservatory, but this season two spacious marquees were erected on the lawn near the Council-room—a far preferable site had the weather proved fine, which, unfortunately, it did not, as an almost continuous rain prevailed throughout the day until within two hours of the closing time, when prospects became a little brighter and the number of visitors increased considerably. Though eminently successful in a horticultural point of view, it is to be feared that the financial results will not be quite so satisfactory; but with a continuation of the liberal support from the local residents the Society will, it is hoped, be able to recover their position and start well for another year.

The most important of the sixty-one classes enumerated in the schedule were well filled; and though there was an absence of the large trained specimen plants seen at the chief metropolitan and provincial shows, their place was well supplied by an abundance of healthy vigorous plants of moderate size, the freshness and informality of which were especially pleasing. The leading feature were the groups arranged for effect either in competition or otherwise, and in all of these considerable taste was displayed, and many different styles of grouping exemplified. The principal competition was in the open class for a group occupying a space not exceeding 100 square feet, Messrs. Hooper & Co., Covent Garden, gaining the premier award with very light, tasteful, and bright arrangement somewhat in the same style as that generally characterising the groups staged by Mr. Hudson of Gunnersbury. The groundwork consisted of Adiantums with well-flowered Ivy-leaved Pelargoniums and Tuberous Begonias, taller plants of white Marguerites, Crotons, Dracænas, and Palms diversifying the appearance and adding much to its gracefulness; a neat but informal margin of Selaginella and a few small flowering plants formed an agreeable finish to a really charming group. Messrs. Fromow & Sons, Chiswick, followed closely also with a pleasing group, though slightly heavier than the preceding; the groundwork consisted of Ferns, Gloxinias, and Caladiums, with taller specimens of Palms, Crotons, and *Lilium auratum*. Mr. W. Brown, Richmond, took the third position with a free and carefully considered arrangement that would have been improved by the introduction of a few more flowering plants, Gloxinias being the principal of these employed; the margin of *Caladium argyrites* and Adiantums was, however, very pretty. An extra prize was adjudged to Mr. G. Stevens of Putney for a pretty combination of Crotons, Palms, Ferns, Gloxinias, and *Caladium argyrites*, with an edging of *Isolepis gracilis*.

In the second class for smaller groups not to exceed 60 square feet in extent the competition was similarly keen and interesting, four very creditable collections being staged and differing little in quality. Leading honours were accorded to Mr. A. Wright, gardener to E. H. Watts, Esq., Chiswick, for a group chiefly distinguished by its lightness and freedom from formality. The base consisted of Ferns, Gloxinias, and Pelargoniums, with a few graceful Cordylines and Fuchsias at the back, and edged with Adiantum cuneatum and *Panicum variegatum* alternately. Mr. G. Temple, gardener to J. Donaldson, Esq., Chiswick, gained the second position with a rather more formal arrangement of fine-foliage and flowering plants, Hydrangeas predominating amongst the latter; and the third prize was adjudged to H. Pearks, Esq., for a bright group of Tuberous Begonias, Fuchsias, Clerodendrons, and Pelargoniums.

The groups not in competition were similarly excellent, the following being highly commended:—Mr. B. S. Williams, Upper Holloway, had a large collection of choice and new plants, comprising Orchids and miscellaneous fine-foliage and flowering plants very effectively disposed. Messrs. C. Lee & Sons, Hammersmith, contributed an extremely pretty group of small ornamental shrubs and Conifers, with very healthy and well-flowered Roses in pots. The white variegated

Taxodium sempervirens alba spica, the Golden Ivy (*Hedera arborea aurea*), and the dwarf small-leaved *Euonymus microphylla* were especially noteworthy amongst the plants employed, a band of the last-named forming a pretty margin. Messrs. Osborn & Sons, Fulham, staged a small but choice collection of hardy plants, comprising many beautiful rarities and novelties, the large purple-flowered *Geranium platypetalum*, the blue *Phyteuma Halleri*, the variegated *Hedera Helix madeirensis*, with several *Campanulas*, being particularly noteworthy. Mr. H. Howell had a novel group, consisting chiefly of bronze and tricolor *Pelargoniums* in panels, edged with *Selaginella* and having a background of Palms and Crotons. Extra prizes were also accorded to Mr. J. Roberts of Gunnersbury Park for a tasteful group of Crotons, *Dracenas*, *Caladiums*, and *Gloxinias*; to Mr. J. R. Starling for a collection of well-coloured *Coleuses*; and to Mr. May, The Gardens, Chiswick House, for a small but neat group of flowering plants.

Stove and greenhouse and fine-foliage plants were not largely represented, the leading awards being gained by C. Bown, Esq., Gunnersbury, Messrs. Hooper, Brown, and Fromow, who had specimens of moderate size but healthy, and in some cases very well flowered; a large globular specimen of *Hoya carnosus* from Mr. Bown, and a fine example of *Phyllotanium Lindenii* from Messrs. Hoopers, being the most noteworthy. Ferns were admirably shown as regards fresh healthy condition, and it is far more satisfactory to see small vigorous plants than huge specimens in doubtful health. Messrs. G. Stevens were the prizewinners in that order with six exotic Ferns, the first-named having *Thamnopteris nidus*, *Adiantum concinnum*, and *Dicksonia antarctica* well represented, the second-prize collection including a good specimen of the distinct *Adiantum caudochlæna*. In the corresponding amateurs' class Messrs. J. Coombes, The Gardens, Sheen House, Watts, and Bown were the successful competitors, taking the awards in the order named. Mr. Watts also had the best collection of *Selaginellas*—conical specimens 2 feet or more in height. Some smaller classes for *Gloxinias*, Tuberous *Begonias*, and cut flowers were also fairly filled.

Bouquets and stands of flowers were very numerous, some in each class possessing great merit. For three bouquets in the open class Mr. W. Brown secured the chief prize for well-arranged combinations of Tuberous, *Stephanotis*, *Gardenias*, and *Bouvardias*, with sufficient Fern fronds to lighten the effect agreeably. Mr. J. Prewett, Hammersmith, was second with neat bouquets, but rather spoiled by large *Eucharis* blooms in the centre, and the same defect prevailed in the third-prize bouquets from Mr. J. Curtis of Richmond, the *Eucharises* and blooms of *Gladiolus Colvillei albus* forming the greater portion of the design, and imparted a rather rough and heavy appearance to them. In the class for a stand or vase of flowers from lady subscribers only Miss E. S. Lawrence, Hammersmith, secured the chief position with a simple but charmingly filled trumpet-shaped vase having three branches, the centre and side tubes being occupied with pink Zonal *Pelargonium* blooms, white *Marguerites*, Fern fronds, and Grasses most tastefully and freely arranged. The base was filled with Water Lilies and white Cactus blooms. Second honours were gained by Miss M. E. Bown, who also had a pretty design but not quite so simple as the other; Tuberous *Begonias*, *Rhodanthes*, *Marguerites*, *Gladiolus*, *Begonia weltoniensis*, and Lilies were the principal flowers employed. In the open class for a vase of flowers Mr. W. Brown won the premier award for an effective and bright arrangement of numerous flowers, such as *Rhodanthes*, *Centaureas*, *Bougainvilleas*, and *Begonias*, with *Passifloras* and Water Lilies at the base. Pendent blooms of *Lapagerias* from the side branches of the stand added greatly to the beauty of the design. Mr. Sutton Abbott, Wanstead, was a close second, and Mr. J. Curtis took the third position, both having praiseworthy stands. Though not in competition, two of the most tasteful contributions were three stands of miscellaneous flowers and one of hardy flowers from Mrs. Barron of Chiswick, which were deservedly highly commended by the Judges. The one containing the hardy flowers was particularly pretty, with tall spikes of a white *Digitalis* in the centre, and *Campanulas*, yellow *Aquilegias*, Sweet Sultan, and *Violas* at the side and base. The three stands were also extremely beautiful, the side ones having each a small central Cocos *Weddelliana* surrounded at the base by Roses, white *Marguerites*, and *Gloxinias*, the central stand having a trumpet tube filled with white and yellow *Marguerites*, with a base of *Begonias*, *Stephanotises*, Fern fronds, and *Mignonette*.

Fruit and vegetables were not shown by many exhibitors, but the latter were better represented than the former. Mr. B. Hardy won in the class for two bunches of black Grapes with fine examples of black Hamburg, the berries large and well coloured. For white Grapes Mr. Coombe obtained a similar position with excellently ripened bunches of Muscat of Alexandria of moderate size. The principal vegetable class was for nine dishes, Mr. Coombe securing chief honours for a fine even collection. In the class for six dishes Messrs. Richardson of Lincoln, Donaldson, and Hardy were the prizetakers, all showing well. Messrs. Sutton & Sons, Reading, offered prizes for the best collection of vegetables (six dishes), the leading prize being awarded to Mr. Coombe for well-grown clean samples of Telegraph Peas, White Spine Cucumbers, Myatt's Ashleaf Potatoes, and Artichokes amongst others. Messrs. J. Carter & Co., Holborn, also offered prizes for the best collection of Peas, comprising fifty pods each of their Stratagem, Telephone, Telegraph, and Pride of the Market. Mr. Richardson gained the chief award for very fine pods; Mr. G. Williams, Sussex, securing the second prize for a collection nearly equal to the other in quality.

Of the miscellaneous exhibits in addition to those already noted the following are especially worthy of attention. Mr. C. Turner, Slough, had a superb collection of Rose blooms, surprisingly bright, fresh, and substantial, Marquise de Castellane, Countess of Rosebery, A. K. Williams, Marie Baumann, and Senateur Vaisse being grandly shown. Messrs. Osborn & Sons also had a fine collection of Rose blooms; Mr. J. Pestridge a large collection of tricolor *Pelargoniums*; Messrs. Fromow & Sons a group of shrubs; Mr. R. Dean, Ealing, a collection of *Mimulus*; Mr. C. Riley, Kew Bridge, rustic summer-houses; and Mr. Wells, Red Hill, samples of his spray-diffuser.

HERBACEOUS PLANTS IN FLOWER.

OF late much attention has been directed to the value of herbaceous plants, and I am happy to see that they are becoming more popular and appreciated by horticulturists. Your correspondent, Mr. Brotherston, has given some sound advice on this subject, and I am sure if other correspondents were to contribute a little of their experience many readers of the Journal would be greatly benefited. Now that the herbaceous borders abound with plants in flower, perhaps a few words will not be inappropriate with regard to some of the best.

First on my notes come the *Armerias*. *A. vulgaris* (common Thrift) is the most extensively cultivated. Many of the country people edge their flower borders with it, and when in flower it is extremely pretty. The flower scapes grow nearly a foot high, and vary in colour from red, rose, pink, and lilac to white. *A. plantaginea* is one of the showiest, producing tall scapes of soft pink flowers; and *A. cephalotes*, a taller species, produces scapes from 12 to 18 inches high. Large tufts are well adapted for the front of the borders. Even when not in flower the plants are always pretty.

Several *Euphorbias* are now in flower. The flowers individually are not very conspicuous, but when seen in clusters they are by no means to be despised, good-sized bushes 4 feet high and as much in diameter look very well in large mixed borders. *E. palustris*, *E. salicifolia*, and *E. lucida* are all worth growing, whilst *E. myrsinites* is well adapted for the front of the borders.

There are many species of *Polygonum* that should be grown more extensively than they are, some of which are well worth a little attention, if only for the large ornamental foliage. *P. alpinum* is now fine, the flowers so much remind one of *Spiræa japonica*. Large bushes of *P. molle* are also flowering well, and *P. polystachyum* has large bold foliage; the flowers, however, are not so showy as the two preceding species. *P. cuspidatum* is a remarkably handsome plant, and in rich soil grows nearly 8 feet high, the drooping racemes of white flowers being succeeded by scarlet fruits.

Phlomis fruticosa, or Jerusalem Sage, makes a useful border plant; the leaves are lanceolate ovate, and covered with a yellowish down. The flowers are produced in large whorls in the axils of the upper leaves. *P. russelliana* has also large whorls of yellow flowers; the foliage is covered with a whitish down. Both are very showy when in flower, and should be planted in open positions where sufficient space is allowed for their full development. *P. fruticosa* is well adapted for planting as single specimens. I lately saw a fine piece 8 feet through, and between 5 and 6 feet high, loaded with blooms.

Three or four species of *Salvia* are flowering profusely. *S. pratensis flore-roseo* is a desirable plant. *S. sylvestris* and *S. lusitanica* are also worth growing, and *S. sclarea* is a very handsome-foliage plant and well deserves a place.

The genus *Veronica* is a very large one, including more than 150 species, several of which are well suited for the herbaceous borders. *V. Teucrium* and *V. T. var. prostrata* is a little gem; it is invaluable for planting near the edge of the border, being of dwarf spreading habit, not exceeding 8 inches in height. *V. gentianoides* has been in flower for some time, and will always be a favourite; with us it grows about 18 inches high. This is a common plant in cottage gardens. *V. austriaca* and the variety *pinnatifida* is a valuable plant; it has larger flowers than any of the preceding, and what increases its value is the way in which the foliage is so finely cut.

Symphytums are noble plants when in flower, and some are well suited for the back of the borders. *S. officinale var. purpurea* grows about 5 feet, with good large flowers and bold foliage. *S. officinale var. bohemicum* is useful, and closely approaches the common Comfrey, excepting that it has bright reddish-purple flowers. *S. asperum* is one of the tallest-growing, and being remarkable for the bristles with which it is armed.

Anchusa italica is lovely when in flower, and remains long in perfection; it grows from 3 to 4 feet high, has shining foliage and bright blue flowers, which are very pleasing. *Polemonium coeruleum*, or Jacob's Ladder, is one of the oldest herbaceous plants

cultivated, and certainly one of the best; it is an elegant border plant, and a great favourite in the cottagers' gardens. It grows about 2 feet high, and should find a place in every collection.

Campanulas are numerous, and some are exceptionally fine; *C. coronata* is a very showy species. *C. Portenschlagiana* is one of the dwarfest and most free-flowering of the genus; beautiful little tufts not exceeding 6 inches high are completely covered with light purple flowers, so much so that little foliage is discernible. *C. collina* ranks amongst the best very dark purple flowers. *C. garganica* is another elegant little species, not exceeding 6 inches in height; the flowers are drooping, pale blue and white.

Amongst yellow flowers the Hieraciums must not be forgotten. *H. vulgatum* is compact and free-flowering, about 18 inches high. *H. amplexicaule* is also a free-flowering plant. *H. villosum* does not exceed 8 or 10 inches in height, and produces flowers a couple of inches high. There are other species that flower at different times that are worthy of consideration. Plants of *Cineraria maritima* that have remained in the borders through the winter are very handsome, the silvery, tomentose, finely cut foliage rendering it a desirable plant.

The Pyrethrums, of which there are many fine forms, deserve special attention. The varieties of *P. roseum* are now classed amongst florists' flowers, and deserve to be largely grown; they are extremely useful for cutting. There are several other species that may be included, and are fine ornaments to the herb border. *Callichroa platyglossa* with its bright yellow *Chrysanthemum*-like flowers is well worth a place, and is now very showy. *Hymenoxis californica* and *Lasthenia glabrata* closely approach the latter in colour and shape of flowers. *Platystemon californicus* is loaded with its creamy white flowers. This is rather a curious little plant, the flower stems and foliage being densely covered with bristles.

The garden Poppy is extremely showy when in flower, and amongst the most conspicuous species are *Papaver pilosum*, *P. argemone*, *P. caucasicum*, and *P. orientale*; the latter a handsome plant 3 or 4 feet high, the stems supporting one large scarlet flower with a dark crimson blotch at the base of the petals.

We must not forget to mention the *Eschscholtzias*. They are great favourites, and well suited for the herbaceous border however select. *E. californica* is considered to be the best. The typical form has bright yellow flowers, and rather loose and much branched in habit. There are many fine varieties of it, the colours varying from white, pink, and paler yellow, and all are well worth growing, as they continue to flower for a long time through the season.—W. K.

GENTIANAS.

THERE is now a multitude of hardy border and alpine flowers happily found in our plant collections, among which the Gentians are as much admired and sought after as any. This is undoubtedly due to the intensity of coloration in the flowers and their persistency. In point of colour there are no hardy plants, with perhaps the exception of the *Delphiniums*, which can at all compete with them, being so very distinctive. Take, for instance, the brilliancy of the flowers of our little native species *G. verna*. What alpine do we grow equal in this particular to it? and under ordinary circumstances the flowers last some time in perfection, usually being of stout texture. When the plants are thoroughly established they are very free-flowering, and certainly very showy. As to their hardiness, we cannot find much fault with them, for the majority (all those described below) can apparently endure a very low temperature—much below what we usually experience in this country. The recent severe winters (excluding, of course, the very mild season just past) have tested the hardiness of all so-called hardy plants, and the Gentians have passed through the ordeal better than many others. During the severe season of 1880–81 the grand Himalayan species *G. Kurroo* did not yield to the severity of the frost, although planted in a very exposed position. I may here say the plant referred to was well established before winter set in, which is essential to the proper security of all plants respecting the hardiness of which there is any doubt. In the case of our introduced hardy plants the best time to plant them out is in spring, thus giving them a fair chance to become established during the severe months preceding winter.

With such merits it is not surprising that Gentians are so eagerly sought by lovers of hardy flowers, especially by specialists in this interesting branch of floriculture. In fact, taking this and a few other primary genera in the proportion of their presence or absence, you have a fair index in the majority of cases of the extent and value of the collection under consideration. I refer to such genera in association with the Gentians as *Primula*, *Androsace*, *Aquilegia*, *Campanula*, *Lilium*, *Fritillaria*, &c., leading genera, because they

are substantial representatives of the best hardy flowers known in our gardens. Some cultivators complain of the difficulty they experience in establishing Gentians. There is surely no reason for it. The difficulty, if any exist, is to secure in the first instance good well-established plants, especially of the rarer kinds. By far the larger portion of them succeed well in ordinary border soil, enjoying cool damp situations with a good drainage, and they all thrive admirably in rich loam, leaf soil, and sharp sand, with the exception of a few bog-loving species which revel in peat and leaf soil—such as *G. Andrewsii*, and in the bog garden they are to be had in much finer condition than under other circumstances. All of them can be fittingly employed for the embellishment of the alpine garden; and where limestone is employed in the construction of the rockery the contrast between the deep colouring of the flowers and the material composing the structure is very striking.

The species and varieties to be enumerated are all of them worth growing; and although the selection excludes many equally as rare and desirable as those described, it represents a fair number of those best known and most easily secured. There are a great many species yet to be introduced. There are not less than thirty-five species found at various altitudes in the Himalayas, of which we know only about three in our gardens.

G. acaulis.—This is a well-known species found in Britain, also occurring in many other parts of Europe. It is very dwarf, forming dense cushions. Leaves ovate, more or less acuminate, shining and evergreen. Flowers $1\frac{1}{2}$ to 2 inches long, erect, bell-shaped, deep blue, and very persistent, on short stems about 2 inches high, appearing during May and June. As well as being readily increased by division it is easily raised from seed, and perhaps the issue from seed are stronger. It is admirably adapted for rockeries and edgings, enjoying a rich loamy soil in a cool situation.

G. acaulis alba is a white-flowered variety, precisely similar in other details. I think it is of Austrian origin, and may be had from Mr. H. Gusmus Villach, Austria, who is rich in alpine flowers. It is a lovely kind, being equally as floriferous as the type.

G. æstiva.—A dwarf species from the Austrian Alps. Stem 2 to 3 inches high, with distichous ovate-lanceolate leaves an inch or more long. Flowers bell-shaped, light blue, not so large as those of *acaulis*, appearing during July and August. This may be increased by division, and is a very attractive little species.

G. alba.—A recently introduced and very beautiful species from the western States of North America. Stems a foot or more high, stout, crowded with sessile flowers at the top, also in the axils of the upper leaves. Flowers about $1\frac{1}{2}$ inch long, white, more or less tinged with yellow, especially at the base. It succeeds well on the rockery or in borders in ordinary soil, and is perfectly hardy, flowering during July and August.

G. alpina.—This is related to *G. acaulis*, having the same habit. The leaves and flowers are rather smaller, and the latter are paler in colour, with a white spot on each lobe of the corolla. It is found on the Swiss Alps, and flowers later than *G. acaulis*—July and August, and it is on that account very desirable, being increased the same way.

G. algida.—A very lovely Siberian species, producing stout, erect, deciduous stems a foot or more high, with terminal clusters of flowers. Leaves lanceolate, acute and shining. Flowers $1\frac{1}{2}$ to 2 inches long, erect, bell-shaped, plaited, pale yellow, with blue spots and markings, especially on the exterior surface. It appears this plant was known in English gardens many years since, but was for a long time entirely lost to cultivation. It has, however, recently been re-introduced by Dr. Regel of Petersburg, from whom I received several very fine plants. It is a free grower and quite hardy.

G. Andrewsii.—This is a native of the eastern States of North America, a very common plant in low marshy places among grass. It grows from $1\frac{1}{2}$ to 2 feet high, with terminal and axillary clusters of flowers. Leaves ovate-lanceolate, blunt, shining. Flowers an inch or more long; the corolla limb remaining closed, or with only a slight opening, of a deep glistening purplish blue colour externally, striped with white internally, appearing during August and September. It is a very showy species, is well adapted for damp and boggy positions, and perfectly hardy.

G. asclepiadea.—A South European species, producing slender stems $1\frac{1}{2}$ to 2 feet high, with very long terminal and axillary clusters of erect bell-shaped flowers, about an inch long, of a deep blue colour, expanding during July and August. There is also a white-flowered variety named *alba*, which is rather stronger in growth, with umbels of white flowers. They are both very showy plants, and thrive well in ordinary garden soil.

G. bavarica.—This is a very dwarf kind, native of Germany, little more than an inch high, with small ovate leaves and erect tubular flowers of a deep blue colour appearing in July, and when

in flower it is a remarkably handsome little species. It enjoys damp peat and sand in a well-shaded position.

G. Burseri.—A very showy species from the Pyrenees. Stems a foot or more high, stout, with numerous ovate-oblong shining leaves and dense terminal umbels of flowers. Flowers erect, open, yellow, spotted with bluish purple, very distinct. It does well in borders or on the rockery, and is a very scarce and highly decorative kind, flowering in July, and lasting a considerable time in beauty.

G. gelida.—A splendid Siberian species. Stems numerous, 9 to 12 inches high, copiously clothed with lanceolate acute leaves. Flowers varying from four to eight in number, in terminal clusters, about $1\frac{1}{2}$ inch long, erect, bell-shaped, with the divisions of the corolla limb spreading, bright blue, expanding during July and August. This is one of the loveliest species in cultivation,

quite hardy, thriving well in borders or on the rockery, and is easily raised from seed. This plant is represented in the woodcut (fig. 107).—N.

(To be continued.)

ONOCLEA SENSIBILIS.

HAVE any of your readers noticed the peculiarity of this beautiful Fern, that it prefers to grow densely shaded by other Ferns? I have had it some five or six years growing in a secluded nook in front of a fine plant of *Osmunda regalis*, and on the northern side of it a *Lastrea Filix-mas*. Last year and the year before, thinking to do a kindness to the *Onoclea*, I raised the fronds of the *Osmunda* on rods, so as to give the *Onoclea* head room; but the result was



Fig. 107.—GENTIANA GELIDA.

it began immediately to shrivel. This year I have left it to struggle as it could through the overhanging fronds of the *Osmunda* behind and the *Lastrea* in front, and have now the largest and most perfect fronds I ever saw; indeed, a well-known Fern-grower and collector tells me that he never saw larger fronds.—G. O. S.

ROYAL BOTANIC SOCIETY.

TABLE DECORATIONS AND EVENING FETE, JUNE 22ND.

THE evening fete of this Society is one of the events of the season, and when the weather is favourable is a brilliant one. The gardens with their fine lawns, trees, and shrubberies are admirably adapted for spectacular effect under the illumination of garlands of lamps and the sun-like rays of the electric light. In connection with this event it is the custom to have an exhibition of table and room decorations, also of bouquets, and it is expected that the best that is

producable in such matters shall be arranged for the instruction and gratification of the visitors, these being distinguished and select. On this occasion the night was fine and 7200 visitors, including the Duke of Albany and the Duke and Duchess of Teck, attended the Gardens.

We have no intention of giving a formal report of the Show, and of submitting the names of all the winners in the different classes—for some, we are constrained to say, had little to be proud of; our remarks will rather be general and critical, and we shall have the misfortune to differ slightly from the Judges in one or two instances. Let no one, however, think we are prejudiced against the principle on which the awards were evidently founded, for we are not; on the contrary, we think it highly desirable that the free and tasteful arrangement of simple flowers should be encouraged. The trim and stereotyped method of furnishing tables at exhibitions is not the most agreeable nor extensively adopted in homes of taste, and we hold that which gives the most pleasure in families should be honoured at shows. Nor do we think the merits of bouquets or baskets of

flowers should be determined by their rarity and cost; so far from that being the case, we should not hesitate to give a prize of £2 to a group of flowers worth 5s., or on the other hand to grant an award of 5s. to flowers worth £2 if the former were arranged tastefully and the latter the reverse, but we shall join in no raid against exotic or tender flowers as such. We are thus free to criticise the Exhibition in question, and to admit, as we readily do, that the Judges had a difficult task to perform, and they spared no pains to arrive at what they were convinced was a right decision in each case.

The decorations on the whole were not equal to our anticipations, and the display afforded one more instance of what we believe to be the fact, that in the arrangement of cut flowers London is behind the provinces. We have seen better bouquets at Liverpool, Leeds, Shrewsbury, Birmingham, and other places, and better examples of table decorations, including epergnes, at Newcastle, Richmond, Tunbridge Wells, Chislehurst, and other larger and smaller shows than were to be seen at the Exhibition under notice.

Dinner-table Decorations.—Sixteen tables were submitted for competition. Some were too prim, some gaudy, some with glittering receptacles for the flowers, some with flowers—such as rich purples—unsuitable for artificial light; then there was glass for a lake, and swans as if frozen on the surface, and again a sombre wreath twisted about on the cloth. Such tables as these were properly passed, for it would be tiresome, to say the least, to have to sit round them for two hours. It was quickly perceived that the premier position rested between Mr. Walter Wood, 66, Conduit Street, London, W., and Messrs. W. P. & G. Philips, 175, Oxford Street, and after much consideration the award went to the former. The table, 10 by 5 feet, was occupied with twenty-three bowl-like vases about 4 inches deep; colour old gold. The central one was about 18 inches wide, the two flanking it a foot. The four corner pieces 6 inches, and the sixteen miniatures about 3 inches in diameter. In the centre of each of the larger vases was a Cocos; in the four corners *Geonoma gracilis*; in the miniatures tiny seedling Palms and *Caladium argyrites* alternately, with a few flowers. The flowers in the larger vases consisted of yellow and white Irises and white *Gladioli* chiefly; yellow *Aquilegias*, Paris Daisies, and small yellow Poppies sparingly; foliage, *Eulalia japonica* variegata largely employed, and Ferns rather lightly used, with *Caladium argyrites* and Japanese Honeysuckle. The result was huge and attractive bunches of flowers and foliage, the central one upwards of 2 feet in diameter. Those who are much engaged in table decorations will not need telling that this table was much too crowded; the vases, as filled, were sufficient for a table of twice the size. The chief vase was also too crowded as *vis-a-vis* guests could neither see under it, over it, round it, nor through it. No doubt the Judges were aware of these faults, but the merits—the pleasing association of flowers and foliage—appeared to counterbalance them, hence the award. Messrs. Philips' table was entirely different. The receptacles for flowers consisted of thirteen pieces of white glazed statuary ware—that is, shallow dishes supported by elegantly formed figures about a foot high. Each of the three central dishes contained a small Palm, the flowers employed being the same as the preceding with the addition of a few *Stephanotis* sprays, Sweet Sultan, and scarlet Poppies and Lilies, relieved with Ferns and Grasses, the whole being free and tastefully disposed. In this table there was nothing really to obstruct the view of the guests, but the glistening white statuary would not be soothing to the eyes. In all probability had the slenderest possible of green sprays been taken from some of the vases and passed once round the stems, this table would have secured the first position. Differences of opinion on the relative merits of the two tables would be many and great, but the majority would probably be in support of the Judges. We doubt if this would be so in the third award to a table that was almost severely neat, still it was chaste. The centre was formed with a slender variegated *Arundo* springing from a mound of Golden *Selaginella*, in which was inserted *Caladium argyrites* and a few flowers. This was flanked with two glass baskets neatly filled with flowers and *Agrostis nebulosa*, a few miniature buttonhole glasses completing the table, which was, in the opinion of not a few visitors, as much too light and tame as the first was overcrowded. Mrs. Searle's table, to which an extra prize was granted, was much admired. In the centre was a fresh Cocos rising from a rich group of Water Lilies, Cactuses, *Eucharises*, Rose buds, and Ferns. The side stands were filled tastefully with wild flowers and Grasses generally, brightened with a few *Begonias*, the whole relieved by pendent sprays of *Bedstraw*, which had a most pleasing effect. The miniature glasses were also pretty, and the general appearance of the table was highly agreeable. The tables furnished with ordinary trumpet-shaped stands containing choice flowers and rich basal arrangements were eschewed; but one table somewhat of this style, by Miss Williams of Holloway, was really pleasing and merited recognition. There was nothing extravagant about it, but it combined brightness with lightness, and richness with chasteness in a remarkable manner, while its appearance was certainly not marred by the Orchid flowers that were sparsely introduced. However, the fact must be recorded that such flowers appear to find little favour in the eyes of the Judges at Regent's Park.

Arches of Flowers.—The examples in competition in this class were generally disappointing, and with the exception of that of Miss Johnson's, Park House, St. John's Wood, for a pier glass or sideboard were scarcely worthy of any awards. The arch in question which was adjudged the chief prize was formed chiefly with white Lilies, Irises,

Spiraea Aruncus, and Ribbon Grass. The second-prize arrangement comprised *Deutzias*, light *Phloxes*, and Ribbon Grass; a few large flowers with foliage would have improved it greatly. It was exhibited by Mr. Buster of St. Mary's Cray.

Epergnes.—"Epergne, a centre table decoration, flowers, &c.," was the official designation of this class, in which there was great competition, but the majority of the exhibits were of a very commonplace character. Mr. Wood secured the first position with a vase the exact counterpart of that in the centre of his prize table above described. The flowers appeared as if springing from a clump of the variegated *Eulalia*, and the arrangement would have proved a beautiful ornament for the table of a large room. Mr. Buster's second-prize arrangement had a base chiefly of red *Gladioli* and leaves of *Begonia* *Pierrei*, the glass above containing three small floating Water Lilies, the top wild flowers and Grasses. The third prize went to Mr. Prewitt for a plant of Cocos, the pot hidden with a high mound of Roses, Water Lilies, *Spiraeas*, Ferns, and *Caladium argyrites*. An extra prize was worthily granted to Miss Brown, St. Mary's Grove Nursery, Richmond, for a large glass dish excellently filled with flowers, Grasses, and leaves of *Begonia* *Louis Chrétien*, the latter having an admirable effect. There was a great number of tall trumpet-shaped glasses, and some of them were tastefully filled; all, however, were passed. As it is certain those glasses will continue to be employed in thousands, and equally certain that they can be rendered highly attractive, would it not be worth considering whether prizes should be offered for them apart from other "centre table decorations?"

Baskets of Flowers.—Of these there were nearly thirty, a few very good, but the majority comparatively indifferent. The awards caused some surprise in this class, and we are compelled to observe that, as regards the first-prize especially, the æsthetic hobbyhorse was ridden rather too hard, while in the third-prize basket grace in arrangement was quite ignored, as the wiring of the Rose buds, which protruded in harsh formality, was plainly visible; thus the awards could not fail being perplexing to exhibitors. The first-prize basket was half filled with *Selaginella*, in which was stuck about twenty border Pansies at regular intervals like pins in a pincushion. The petals were drooping and flaccid, and the stems slanted at various angles. This basket of hardy flowers was "harmoniously" margined with exotic Ferns, no Pansy leaves; while, as if a burlesque on natural arrangement, four Pansy flowers were tied on the top of the handle of the basket! A basket of Pansies with sprays of the foliage of the plant is beautiful, and we can readily understand such an arrangement winning a prize, but we cannot understand how such namby-pamby taste as was displayed in the above effort should be countenanced. It was a simple example of playing with flowers as a child would play with them. Indeed, we do not hesitate saying that hundreds of better and more tasteful examples of arrangement have been seen, and will be again, at children's village shows. A few more such awards as this and the Basket Show of the Society may be expected to become notorious, "taste" in arrangement an enigma, and the whole an artistic curiosity. The second-prize basket of Mrs. J. A. Guimarens, Caterham Valley, was really attractive by the free arrangement of wild Roses, a few *Rhodanthes*, with Oak sprays and Ferns—infinitely superior to the nondescript study in Pansies. The third basket, we have stated, was conspicuous by the wired Rose buds transfixed in mathematical regularity. Can it be possible that these were overlooked by the adjudicators? This question is suggested by the word "wired" attached to another basket that was passed, as if indicating its ineligibility for competition. Another basket was filled with Orchids, *Odontoglossum vexillarium* being used lavishly, but there was a total absence of taste in their disposal, and the arrangement was properly passed; but we fail to perceive any valid reason for ignoring the merits of a pleasing arrangement of Roses and white *Gladioli*, with a spray or two of *Bougainvillea* and Ferns, from Mr. T. C. Brown, 100, Camden Road; and an equally good arrangement from Mrs. Butcher, Station Road, Norwich. There was neither crowding nor formality in these baskets, and both of them were most creditable examples of flowers pleasingly disposed. If they were passed because a few tender flowers were included the sooner there is a class in which such may be included, and another for hardy flowers exclusively, the better. By this plan the Society would have a better display, the duties of the Judges would be easier because defined, and exhibitors would know what to do to avert disappointment. Only confusion can exist now, and mongrel mixtures may be expected to follow.

We have had no pleasure in penning those remarks, but the reverse. It may be urged that our observations are founded on defective taste. Be that as it may, they are the outcome of some experience, and we have derived no education from the basket lesson in question. We have furnished numbers of baskets for critical eyes, examined the exhibits at at least a hundred shows, and adjudicated on not a few; but we entirely fail to perceive wholesome taste on the one hand in dotting withered Pansies $1\frac{1}{2}$ inch apart in moss, fringing them with Ferns, and hoisting a cluster on the basket handle, and on the other of wiring Rose buds in a basket for a drawing-room table and depriving them of their natural loveliness. The arrangement of flowers is a subject in which many are interested, and we are quite unable to recommend the examples specially honoured and referred to as worthy of imitation. Our unwelcome task is finished, and we turn to another class.

Bouquets.—Seven brides' bouquets were exhibited, Messrs. Henry and Co., Victoria Road, worthily securing the first position. The

arrangement was needlessly large but excellent; it was inverted saucer-shaped, and exactly 18 inches in diameter exclusive of the fringe of Ferns. With these it would measure 2 feet, following the curve of the flowers. It comprised one or two Eucharises, white Carnations, Odontoglossums, Phalænopses, Tabernæmontanas, and white Lapagerias, filled in, but not too closely packed, with Bouvardias and Tuberoses. This was the only really superior bouquet in the class, the other prizewinners only being fairly good, and those left out too smoothly formed with Stephanotis that had a more or less dingy appearance, and they deserved their fate. Of ball bouquets there were ten, some of them large, laboured, closely packed, and rich. These were rightly passed in favour of simpler arrangements. The first prize went to a bouquet formed wholly with pale pink and scarlet Cloves, not mixed, but in groups of each colour, relieved with buds and foliage of the same plants rising above the flowers, and a light fringe of Ferns. This was beautiful by its simplicity, and fragrant, yet too lumpy. The second was a mixed collection of stove and greenhouse flowers; the third a group of crimson and yellow Roses with a rather incongruous mixture of Utricularias, which probably lost it the second position. We are not amongst those who dissented from the awards in this class, as the bouquets which contained many Orchids were much too smooth and crowded.

Prizes were offered for furnished rustic vases, but nothing striking was produced; and for furnished windows, which brought out some grotesque and toy-like examples not worth the space they occupied. Messrs. Cutbush & Sons easily secured the first position in the class for groups of plants, and they were the only exhibitors in the class for a furnished tent, as if for a ball or reception, with a good arrangement. Four prizes of £10, £7, £5, and £3 with medals were offered in this class, but they failed to tempt exhibitors.

The decorations were chiefly arranged in the large marquee, the tables being placed in the recesses of the grass banks. The centre of the tent was formed into a Rose garden by Mr. George Paul, who filled the five large crescent-shaped beds with Roses in pots, Ferns, and Oleanders. Twelve hundred plants were employed, nine hundred of them Roses in 6 and 7-inch pots, the plants dwarf and blooms fine. Neat wicker baskets on tripod stands were filled with Roses, and arranged with Palms and Oleanders at the back of the groups, the whole having a most beautiful effect. We have no space for enumerating the varieties, but one Rose, the White Baroness, is referred to in another column. Some admirable groups of Todeas, exhibited by Messrs. E. G. Henderson & Sons, contributed greatly to the attractiveness of the tent.

THE METEOROLOGICAL SOCIETY.

THE closing meeting of this Society for the present session was held on the 21st inst. at the Institute of Civil Engineers; Mr. J. K. Laughton, F.R.A.S., President, in the chair. The following papers were read:—

1, "A New Metal Screen for Thermometers," by the Rev. F. W. Stow, M.A., F.M.S. This screen differs from the ordinary Stevenson in the following respects:—(1) It is somewhat larger. (2) It has a single set of double zinc louvres. (3) It is partially closed at the bottom to cut off radiation from the ground. The advantages claimed for the use of zinc louvres are:—(1) The conductivity of metal causes the heat derived from the sun's rays to be distributed over every part of the louvres. (2) The louvres being much thinner than those of wood the circulation of air through the screen is not only much greater absolutely, but much greater also in proportion to the bulk of the louvres. (3) The zinc louvres, therefore, are much more sensitive to changes of temperature than wooden ones. Comparative readings of thermometers in this screen along with those in an ordinary Stevenson screen were made during the summer of 1881. From these the author is of opinion that the Stevenson becomes unduly heated when the sun shines, but this may be as much due to its small size as to the material of which the louvres are made. The thermometers in it are only 3 to 5 inches from the louvres at the back of the screen against 7 to 8 inches in the zinc screen. The roof, too, is single, and the box is open at the bottom. The author also says that there is no need to condemn all wooden screens, but there does seem to be some reason to think that screens with metal louvres might be better.

2, "On the Effect of Different Kinds of Thermometer Crib, and of Different Exposures in Estimating the Diurnal Range of Temperature at the Royal Observatory, Cape of Good Hope," by David Gill, LL.D., F.R.A.S. Meteorological observations were commenced at the Cape Observatory in 1841, when the thermometers were placed in a well-ventilated crib before a south window, through which they could be used. The buildings were unfortunately burnt in 1852. A small wooden house with double roof and affording a free passage of air was then erected on the site of the old Meteorological Observatory. The instruments were placed in the middle of this building, and observations were recommenced on the same plan as before, and continued until the end of August, 1858. On September 1st the ther-

mometers were transferred to a crib erected in front of the south-west window of the transit circle room. This crib is well ventilated, except on the side next the transit room window, but the great mass of solid masonry in the immediate neighbourhood of the thermometers appears seriously to affect the range of temperature. For many years a Glaisher stand has been in use, and at the end of 1880 the author caused a Stevenson screen to be erected in its immediate neighbourhood. In this paper the author gives results of observations made in the window (Stevenson and Glaisher screens) during the year 1881, from which it is evident that the exposure of the thermometers in the window crib gives a distinctly smaller and on the Glaisher stand a larger daily range of temperature than in the Stevenson screen.

3, "Some Account of a Cyclone in the Mozambique Channel January 14th to 19th, 1880," by C. S. Hudson.

4, "Rainfall of Frere Town, Mombassa, East Coast of Africa, 1875 to 1881," by R. H. Twigg, M.Inst.C.E., F.M.S.

SILKWORMS AND SILKWORM REARING.—11.

(Continued from page 498.)

In the west-end parks of London, and also in one or two of the fashionable squares, are to be seen a few average specimens of the Ailanthus tree, which does not on the whole suffer from the conditions that vegetable life has to submit to within the metropolitan district. It has also been planted elsewhere in parks, shrubberies, and gardens, though as yet scarcely a popular acquisition. That



fig. 108.

may be partly because the novelties amongst shrubs and trees are so numerous. Perhaps it is partly owing to its value being insufficiently known, for the species in question—viz., the Ailanthus glandulosa, has no dislike to the atmosphere of large towns and its sterile soil. In appearance it is agreeable to the eye if not strikingly ornamental. The glossy leaves might suggest to us some association between the tree and a silken product, the Ailanthus being, in fact, the special food of one of the silkworms we have to notice, the Bombyx or Attacus Cynthia, of which eggs, larvæ, and cocoons are represented in fig. 108.

Ailanthus glandulosa has, however, two names in our vernacular, though not, I believe, originated on our shores, nor do we often hear them applied to it. They are quite in contrast with each other, since it has been called the "Tree of Heaven" and the "False Japan Varnish Tree." Occurring in various parts of Asia, it appears to have its habitat towards the north of that continent, and flourishes especially in China. Hence the Chinese have for a time of uncertain length been engaged in producing silk for the market that has been obtained from the cocoons of the Ailanthus worm, an article which has been styled Ailantine. The silk spun by this species, A. Cynthia, is to be recognised by its great softness; also both fabric and skeins, as obtained in China, indicate that the thread is reeled or wound by the dexterous natives. From

the circumstance that this particular kind of silk has taken its name from the tree on which the worms feed some have called "Ailanthiculture" the nurturing and breeding of these worms, which is scarcely an appropriate term, being more applicable to the cultivation of the tree.

Experiments have proved that the larvæ of *Attacus Cynthia* will eat, and even do tolerably well, upon Lilac, Cherry, or Laburnum, but it is desirable to obtain for them a supply of the leaves of their favourite food plant. As already stated, the *Ailanthus* tree is easy to grow, and its growth is generally rapid. The French have planted it very extensively with the object of rearing this silkworm and for other reasons. Some have proceeded on the slow plan of sowing seeds of the species in May. A more usual method is to set slips in mild weather during the winter months. The trees make a good show in a clump; yet possibly they grow best in rows with about 5 feet between each, and in a little while they will form a capital edge to a park or shrubbery. Seedlings have been sold by nurserymen at 3s. a score, and young trees at 10s.

The moth of *Attacus Cynthia* surpasses in appearance the better known insect *Bombyx Mori*, and has a greater expansion of wing. These means of flight are crossed by a white band, the course of which is followed by a line of rose colour. Upon each wing is also a very distinct crescent-like spot. This species and others in the same genus are distinguished by this peculiarity, that they will grasp a finger or any object that is extended towards them. *B. Yama Mai* and several allied to it refuse to do so, but drop as if alarmed. In colour the worm varies at different ages. When it has passed the final change of skin it has a rich green colour, the head, tail, and feet yellowish. The segments are adorned with black spots and short spines. The cocoon is of the open kind, and when in the act of forming it the caterpillar is fond of using a leaf to enwrap it partially or entirely. This is one of the silkworms in which the winter is passed within the cocoon, from which the moth emerges some time in May or June. Eggs being then laid young worms come forth at the end of July or during August, living seven or eight weeks, attaining the adult stage more rapidly in warm weather; but all that are healthy will have spun their cocoons early in October. From the construction of these being open the moths extricate themselves by pushing the fibres aside, without moistening them as is done by the silkworm most familiar to us, also by *B. Yama Mai* and others.

Though there are doubtless difficulties in getting the cocoons of *B. Cynthia* wound off satisfactorily, there is evidence that the species forms them by means of a single thread. When it lives in a climate quite congenial, as, for instance, in its native region of North China, there are always two broods yearly of *B. Cynthia*. The first brood of worms produce moths during the summer; eggs from these hatch speedily, furnishing a second brood, the worms completing their changes in the autumn, but they are liable to be retarded. Double broods of this species have been not uncommonly obtained upon the continent of Europe, and also reared in other favourable lands, such as Australia, New Zealand, and the Cape of Good Hope, and in these the insect can be allowed to go through all its transformations without any protection from the weather. And indeed there seems to be much in favour of its acclimatisation in Europe from the experiments that have now been made, but only during an equable and rather dry season could the worms of *A. Cynthia* succeed upon the *Ailanthus* tree, as it grows exposed in our parks and shrubberies.

Specimens of this insect were sent to Europe about twenty-five years ago, and it soon came under the notice of M. Guérin-Méneville, who exhibited to the Academy of Sciences at Paris in 1858, French examples of *A. Cynthia* reared in the open air. He explained what advantages might arise from its culture, since the cost of its management would be little, and its double brood-ness would increase the annual produce therefrom. The silk or ailanthine, he thought, might take a middle position between wool stuffs and the material got from the cocoons of the Mulberry worm, but he only anticipated that there would be produced a floss silk by carding. A few years after, however, a lady and gentleman succeeded, about the same time, in winding off the entire thread from *Cynthia* cocoons, showing what might be attainable in this industry. An establishment for these worms was started at Vincennes, and some others followed, but although many trees were planted the culture of the worms has hardly been pursued with French enthusiasm.

It is not possible to feed these silkworms upon picked leaves as is the usual practice with the Mulberry silkworm already described. The eggs might be placed, by way of experiment, in a little bag of canvas, this being secured to a smallish twig upon a suitable branch of an *Ailanthus* tree. The whole branch should

then be enveloped in a muslin bag tied at the base of the branch, so that the silkworms may feed upon the leaves without wandering. When the branch has been stripped they must be transferred to another if not full grown; but in our climate probably a better chance of success is obtained by feeding them upon twigs or boughs of this tree, which are placed in water under cover; and if the room chosen is moderately cool and not exposed to the sun, the worms will only require to be shifted to fresh food once in three or four days. After passing through the usual "five ages" of caterpillar life, by a change of colour at the final increase of size they indicate that they are inclined to form their cocoons. These they may be allowed to spin upon the food plant. During the winter the cocoons must be kept in a room not heated artificially, and preserved from the attacks of insect parasites.—J. R. S. C.

ROYAL HORTICULTURAL SOCIETY.

JUNE 27TH.

THOUGH the exhibits before either of the Committees were not very numerous several interesting groups were staged, especially the handsome samples of *Mignonette* from Chiswick and the hardy flowers from Tottenham. In conjunction with the Pelargonium Society's Show an extensive and attractive display was produced, which was patronised by numerous visitors.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. Mr. C. Herrin, gardener to J. N. Hibbert, Esq., Chalfont Park, exhibited fine samples of Stamfordian Tomatoes, large, even, and well-ripened. A vote of thanks was accorded. Mr. J. Hardy, Stour Valley Seed Grounds, Bures, Suffolk, showed plants and pods of a new Pea named *Signal*, which appeared to be very prolific, the pods containing ten or twelve peas in many cases. It is to be tried at Chiswick. Messrs. John Hamlin & Co., Newbury Road, Wood Green, staged samples of Mushroom spawn with some good Mushrooms. Mr. G. Phillips, gardener to Captain Jackson, The Deodars, Meopham, sent samples of a new Pea, said to be a cross between *Stratagem* and *Telephone*; the pods were large and fairly filled, and, judging by the haulm exhibited, it is of medium height and fairly prolific. This also is to be tried at Chiswick.

Mr. Coombes, gardener to Sir H. Meux, Sheen, Mortlake, Surrey, sent a new green-fleshed Melon named *Green Bergamotte*, rather small, but with deep flesh. It was considered the same as *Egyptian Green Flesh*. Mr. McIndoe, gardener to Sir J. W. Pease, Hutton Hall, Guisborough, showed a sample of *McIndoe's Scarlet Premier Melon*, a fine variety with deep flesh of good flavour. Mr. H. Mann, St Vincent's, Grantham, and Mr. Bennett, The Gardens, Tillgate, Crawley, also sent new Melons of good appearance.

FLORAL COMMITTEE.—Mr. B. S. Williams in the chair. Mr. H. James, Castle Nursery, Lower Norwood, exhibited several Orchids: one, *Odontoglossum cordatum aureum*, a variety with yellow flowers and a white lip. *Masdevallia Harryana splendens* has large and richly coloured flowers, the specimen shown having two dozen flowers. *Trichopilia picta* has narrow green sepals and petals, the lip yellowish dotted with red. *Masdevallia vespertilio* has small flowers somewhat of the *Chimæra* type, dotted with crimson on a whitish ground. Mr. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, sent a plant of *Pescatorea Dayana* bearing seven flowers, the sepals and petals white tipped with claret, the lip being of a similar colour. The plant was raised much above the rim of the pot, the flowers clustering amongst small Ferns, which were growing round the base of the plant. The same exhibitor also sent fine flowers of *Oncidium macranthum* and the variety *hastiferum*. Mr. B. S. Williams, Upper Holloway, had a pretty group of new plants and rare Orchids, the rose-streaked *Amayllis* Mrs. Garfield, the bright yellow *Croton* Princess of Waldeck, and rich red-leaved *Croton* Duke of Albany being notable. *Odontoglossum citrosimum grandiflorum* had two grand spikes of flowers, one with a dozen large blooms. *Lycaste Deppei punctatissima* has the lip richly dotted with maroon and the petals with purple. The new *Cypripedium Spicerianum* was also shown in flower, the petals, lower sepals, and lip being greenish; the upper sepal white, broad, with a central purple band.

Mr. Simcoe, gardener to G. N. Wyatt, Esq., Lake House, Cheltenham, was awarded a cultural commendation for a fine plant of *Aerides Lobbi* bearing three spikes, one about 2 feet long with nine branches. Mr. Simcoe also had a plant of *Galeandra Devoniana* with eight flowers, the lips white streaked with purple, the sepals and petals brownish green. A cultural commendation was also awarded for specimens of *Bollea caelestis* with six deeply coloured flowers; and a vote of thanks was accorded to the same exhibitor for *Cattleya superbaspandens* with ten flowers. Two large specimens of *Sobralia macrantha* and *Imantophyllum miniatum* were also shown. Messrs. J. Laing & Co., Forest Hill, sent a plant of a very double *Begonia* with pale rose-coloured flowers. Mr. J. Douglas, Loxford Hall, Ilford, had a plant of a variety of *Mimulus cupreus* with dark scarlet flowers; and Mr. Hudson, The Gardens, Gunnersbury House, had a fine *Gloxinia* named Mrs. Atkinson, with large bright purple flowers with a broad white margin spotted with the same colour. Messrs. J. Carter & Co., High Holborn, sent specimens of a bright yellow *Tropæolum* named *Lady Bird*, with large showy flowers;

Dianthus barbatus fl.-pl., very richly coloured; *Clivia Aitoni* and *Gaillardia picta Lorenziana*, which was certificated.

Mr. T. S. Ware, Tottenham, had a beautiful collection of hardy flowers, *Liliums* being very strongly represented; the bright yellow *Papaver nudicaule* and its white variety, several *Irises*, *Ixias*, *Pinks*, and *Campanulas* adding to the interest of the group. A medal was awarded. Mr. H. Bennett, Shepperton, Walton-on-Thames, showed several new "pedigree" *Roses*, *Her Majesty*, a full pale delicate pink variety, being especially noteworthy for its good substance. Messrs. W. Paul & Son, Waltham Cross, sent three new Hybrid Perpetual *Roses*—one a very dull scarlet or maroon seedling, *Queen of Queens*, very full pink; and Charles Lamb, extremely bright rose, approaching scarlet. Mr. R. Dean, Ealing, had a pretty collection of *Campanula* blooms—white, lavender, purple, and pink. A collection of a dozen fine *Gloxinias* was sent from Chiswick, several very beautiful varieties being represented. Mr. C. Green, The Gardens, Pendell Court, Bletchingley, sent a number of spikes of *Foxgloves*, showing the varieties in colour and marking.

A vote of thanks was accorded to G. F. Wilson, Esq., for a specimen of *Lilium Scott Wilson*, with yellow and rose-tinted blooms, partaking of the characters of *L. canadense* and *L. superbum*, the foliage resembling *L. Washingtonianum*.

The following plants were certificated:—

Paphinia rugosa (Williams).—A very distinct *Orchid*, with narrow straw-coloured sepals and petals, the petals streaked transversely with dark crimson, and the sepals dotted with the same colour. The flowers are borne in a short spike 5 or 6 inches high.

Lycaste Deppei punctatissima (Williams).—Chiefly distinguished from the well-known type by the yellow lip being spotted with rich maroon, and the white petals dotted with purple.

Pelargonium Lady Brooke.—A second-class certificate was awarded to Mr. Stacey, Dunmow, for a plant of this variety, one of the decorative section, with purplish-crimson flowers of good size, the petals being wavy.

Gaillardia picta Lorenziana (J. Carter & Co.).—Florets all tubular in a head 3 inches in diameter, the base of the florets red, and the upper part rich yellow.

Pescatorea Dayana (Salter).—A beautiful species with small flowers clustered round the base of the plant; petals and sepals white tipped with claret, the lip being wholly of the latter colour.

Gloxinia Mrs. Atkinson (Hudson).—Flowers very large and finely formed, $3\frac{1}{2}$ inches in diameter, purplish violet, with a clearly defined lighter marginal band spotted with the same hue.

Reseda odorata pyramidalis grandiflora (Royal Horticultural Society).—A handsome variety of *Mignonette* with enormous heads of flowers, very fragrant.

Croton Princess of Waldeck (Williams).—Leaves somewhat like *C. Disraeli* in form, the midrib and base bright yellow, the upper portion dark green.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Hollyhock Fruits Attacked by Fungi.—Mr. W. G. Smith exhibited fruits and an enlarged drawing showing them to be often badly attacked by *Puccinia malvacearum* and a *Cladosporium*, which would probably account for the presence of the *Uredo* noticed by Mr. Berkeley on the germinating plants at the last meeting.

Hybrid Lily.—Mr. G. F. Wilson exhibited a very interesting hybrid between *L. Washingtonianum* and *L. superbum*, which accidentally appeared. It had the foliage of the former; but he had not examined the bulb, that of the former species being remarkable for its rhizomatous character.

Synanthic Flowers of Campanula.—Mr. G. S. Boulger exhibited a flower received from Mr. Gibbs of Chelmsford, who believes that he has succeeded in forming a race of *synanthic* plants by fertilising a common form with the pollen of a *synanthic* flower. Of two hundred plants raised many had *synanthic* flowers, but none with a catacorolla like the parent (female) which he had used for being fertilised.

Cæsalpinia Pods.—He also exhibited some pods of an unknown species used for tanning. They were referred to Kew for identification.

Diseased Orange Leaves.—Dr. M. T. Masters brought some leaves of plants grown in pots indoors, otherwise healthy, but with pale green and dead spots on the foliage. It was suggested by Sir J. D. Hooker that it might be due to sunstroke.

Retinospora Sport.—Dr. Masters also exhibited a specimen of *R. squarrosa*, which had assumed the form of *R. pisifera*. It was received from Mr. Meehan of Philadelphia. He also showed a remarkably golden spray of *Spruce Fir*, and some virescent flowers of an *Auricula*.

Monstrous Branch of Wallflower.—The Rev. G. Henslow exhibited a branch covered with minute thread-like leaves or bracts; no explanation as to its cause was given.

Proliferous Begonia.—Mr. Laing exhibited a double rose-coloured *Begonia*, in which the female flowers were in some cases single, while others formed compact double blossoms with white petals in the centre. The male blossoms consisted of a terminal mass of petals on a stalk, surrounded at the base by several axillary blossoms, all more or less double, forming a cylindrical truss of from 2 to 3 inches in length.

Gunnera scabra.—A fine fruiting spike of this plant was exhibited by Mr. C. Green.

SPECIAL PRIZES FOR VEGETABLES AND PACKING FRUIT

At the end of the long tent the vegetables occupied considerable space, and very rarely is such keen competition seen at exhibitions. The collections in all cases, too, were of such nearly equal quality that the Judges had much difficulty in determining the awards.

Six prizes were offered by Messrs. Sutton & Sons, Reading, for a collection of vegetables comprising twelve distinct kinds, and in this class no less than a dozen collections were staged, all highly creditable to the exhibitors. Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, was accorded the first prize for an even beautiful collection, comprising *Nantes Horn Carrots*, *Leviathan Beans*, *Brown Cos Lettuces*, *Canadian Wonder Beans*, *Model Cucumbers*, *Flat Tripoli Onions*, *Culverwell's Telegraph Peas*, *Pine-Apple Beet*, *Veitch's Ashleaf Potatoes*, *Victoria Cabbage*, *Brown Cos Lettuce*, and *Snowball Turnips*. Mr. S. Haines, gardener to the Right Hon. Earl of Radnor, Coleshill House, Highworth, was second with a handsome collection, including *White Tripoli Onions*, *Nutting's Dwarf Red Beet*, and *Leviathan Beans* very fine. Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, Surrey, was third. Mr. Meads, gardener to Viscount Barrington, Beckett Park, Shrivenham, fourth. Mr. Charles Waite, The Gardens, Glenhurst, Esher, Surrey, fifth; and Mr. H. W. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury, sixth.

Messrs. Webb & Sons, Stourbridge, offered four prizes for six distinct kinds of vegetables, and in this class the competition was also very keen, about nine collections being staged. Mr. Miles was first with very even fresh example of *Stratagem Peas*, *Nantes Horn Carrots*, *Walcheren Cauliflower*, *Early White Naples Onions*, and *Veitch's Ashleaf Potatoes*. Mr. Haines a very close second, his *Onions*, *Peas*, and *Beans* very fine. Mr. R. Phillips, gardener to Capt. Phillips, Meopham, Kent, was third with a very creditable collection; and Mr. C. Waite, Glenhurst, Esher, fourth.

Messrs. J. Carter & Co., Holborn, offered five prizes for four dishes of *Peas*, comprising *Telephone*, *Stratagem*, *Telegraph*, and *Pride of the Market*, fifty pods each. Nine collections were staged, and in the leading ones the pods were very handsome. Mr. Richardson, Boston, Lincolnshire, was first with extremely fine pods, Mr. Phillips was second with handsome pods, Mr. Miles third, Mr. Marriott fourth, and Mr. J. McIndoe, gardener to Sir J. M. Pease, Bart., M.P., Hutton Hill, Guisborough, Yorkshire, was fifth.

Messrs. Hooper & Co., Covent Garden, offered two prizes for a dish of *Laxton's Earliest of All Peas*, for which there were nine entries. Mr. H. Marriott, Skirbeck, Boston, Lincolnshire, was placed first with handsome pods; and Mr. W. G. Williams, gardener to C. Liddell, Esq., Peasmarsh Place, Sussex, second.

Messrs. Webber & Co.'s prizes for the best mode of packing fruit for market brought three competitors. The premier award was adjudged to Mr. Coleman, gardener to Earl Somers, Eastnor Castle, Ledbury, who had a box of *Peaches* and one of *Grapes*. The former fruits were wrapped in tissue paper and firmly embedded in dry clean moss. The *Grapes* were closely and firmly packed in the centre of a box, the sides of which were thickly padded with moss and covered with tissue paper. In both cases the fruit had arrived in excellent condition. The second prize was awarded to Mr. A. Waterman, gardener to H. A. Brasscy, Esq., M.P., Preston Hall, Aylesford, who also had *Peaches* and *Grapes* packed in wool and tissue paper, and, though less firm than the other system, they were in good condition.

PELARGONIUM SOCIETY'S SHOW.

AN extensive and beautiful Exhibition was provided at South Kensington on Tuesday last; and though the competition was not very keen in any of the classes, the good quality distinguishing the majority of the plants was amply compensatory. The miscellaneous exhibits were also numerous and added materially to the interest and beauty of the Show, while the extraordinary competition in the special classes for vegetables constituted another attractive feature. The long tent which is usually employed as an approach to the marquee when the Royal Horticultural Society's Summer Show is held was well filled, and viewed from the entrance the banks of *Pelargoniums* on each side had a brilliant effect.

Show Varieties.—Several fair collections of these were staged, the largest being in the class for six plants; Mr. Wiggins, gardener to H. Little, Esq., Uxbridge, taking the chief position with well-flowered specimens of *Illuminator*, *Prince Leopold*, *Claribel*, *Setting Sun*, *Sultana*, and *Victory*. Mr. C. Turner, Slough, was a very close second, the plants being smaller than the others, but the flowers were larger. Mr. Hammond, gardener to F. Hunt, Esq., York Lodge, Stamford Hill, was third with healthy but rather poorly flowered plants. For eighteen varieties Mr. C. Turner secured the chief honours with a very beautiful collection, the flowers of great size, excellent form, and rich colours. Some of the best varieties were *Ruth*, *Illuminator*, *Invincible*, *Magician*, *Ritualist*, *Joe*, *Fortitude*, *Countess*, *Royal Review*, and *Margarite*. Mr. Wiggins won the second position also with very good varieties, *Claribel*, *Thebais*, *Sultana*, and *Amethyst* being fine. Mr. Hammond was third.

Fancy Varieties.—Only two collections of these were staged in the class for six specimens, the premier prize being secured by Mr. C. Turner with fresh handsome specimens profusely flowered and not too formally trained. *Lady Carrington*, *Electric Light*, *Mrs. Pope*, *Mrs. Hart*, *Mrs. Pottle*, and *Princess Teck* were the varieties shown.

Mr. Wiggins was a close second, four of his plants being grandly flowered; Lucy, Mrs. Graham, Pilgrimage, and Mrs. A. Wiggins being the best.

Decorative Varieties.—For six plants in this section Mr. Wiggins won the leading position, staging vigorous freely flowered specimens of Rosina, Duchesse de Morny, Harlequin, Madame Thibaut, Duchess of Edinburgh, and Triomphe de St. Mandé. Mr. C. Turner took the second prize with neat examples of Duchess of Bedford, Digby Grand, Prince of Wales, and Venus; the third prize going to Mr. Brown of Hendon for small compact specimens. For eighteen varieties Mr. Wiggins secured chief honours for a beautiful collection; Multiflorum, Comtesse de Choiseul, Volonte Nationale, Reamie, Sir J. Outram, and Madame Thibaut being particularly good. Mr. C. Turner followed closely with plants in admirable condition, Rosette, Miss Aliee, Nellie Hayes, Delicatum, and Mr. John Hayes being remarkably well flowered. Mr. Brown was third, chiefly with dark-coloured varieties; Harry Buck, Vesuvius, Attraction, and Mermerus Improved being very fine.

Zonal Varieties.—These were largely represented and very bright, the leading collection of six from Mr. Catlin, gardener to Mrs. Lermite, Finchley, being as usual extremely fine. The specimens were trained flat, 5 feet in diameter, and bearing very large trusses of flowers; The Rev. Atkinson, Fanny Thorpe, Cymbeline, Fanny Catlin, Alice Burton and Ouida were the varieties. Mr. Wiggins was placed second with considerably smaller untrained plants than the preceding, but bearing enormous trusses of flowers; Ivanhoe, Atala, Gathorne Hardy, Mrs. Patchett, Olive Carr, and Hetty being the varieties shown. Mr. W. Meadmore, Reigate, was adjudged the third prize for rather loose examples. For eighteen plants Mr. Wiggins was first, having vigorous specimens similar to those in the preceding class; in all cases the trusses were very fine and the colours rich. Some of the best varieties were Rigoletto, Romeo, Beatrix, Aphrodite, Madonna, Fanny Catlin, Polly King, and Guinea. Mr. Meadmore won the second award; Mr. J. Weston, gardener to J. Martineau, Esq., Clapham Park, being third, both showing rather small plants. For six double Zonals Mr. Catlin took the lead with large even specimens of Gorgeous, Deputé Veux, M. Thibaut, Lively, Devotion, and Dauntless; Mr. Meadmore was second with smaller and less attractive plants. Mr. Wiggins had the best eighteen doubles; Urania, Gambetta, Roi des Violets, Dr. Jacoby, Aglaia, and Eugène Bandonine being the best varieties. Messrs. Saltmarsh and Son, Chelmsford, were second with fresh, bright, neat little specimens; Lord E. Cecil, Victor Hugo, Lucie Lemoine, and Wonderful being the leading varieties. Mr. Meadmore took the third position with a good collection.

Ivy-leaved Varieties.—These formed an attractive feature in the display, though only four collections were staged, their informality rendered them very noticeable. For nine plants Mr. Wiggins was first with tall conical plants 4 to 5 feet high and well flowered; Gloire d'Orleans, Annie Pitzer, Emilie Baltet, A. F. Barron, Madame Boringe, Mdlle. Jean Wouters, Mrs. H. Cannell, Mons. Crousse, and Sarah Bernhardt being the varieties represented. Messrs. H. Cannell and Sons, Swanley, were second with small compact healthy plants, but excellently flowered, Viscountess Cranbrook, Comtesse H. de Choiseul, Eurydice, Gloire d'Orleans, and Madame Crousse being very fine. Mr. G. Duffield, Winchmore Hill, N., was third with rougher plants, but extremely healthy and floriferous.

Cut Flowers.—Large and beautiful collections of these were staged by several competitors. For twenty-four Show varieties Mr. C. Turner took the premier prize with a grand collection, the only one in the class. Messrs. Saltmarsh had the best twenty-four Show varieties, also large and fresh; and Mr. Meadmore was second with a praiseworthy collection. Mr. Wiggins had the only collection of twelve Show varieties, and was awarded the first prize. Zonal varieties were shown by Messrs. Duffield, Wiggins, Saltmarsh, and Meadmore; Messrs. Cannell having the best Ivy blooms, and Mr. George of Putney the next in merit.

New Varieties.—For three Show varieties E. B. Foster, Esq., Clewer Manor, Windsor, was first with Royal Review, Veteran, and Zealot. For one plant Mr. C. Turner was first with Cromwell (Foster). For three Fancy varieties Mr. C. Turner was first with Indian Chief, Irene, and Florrie Thompson, all Turner's varieties. For three Decorative varieties Mr. Little was first with Rose Superb (Little); Brilliant (Little), and Aurora (Jackson). For three Zonals Mr. George was first with Emperor, Favourite, and Edith George, all his own varieties. Mr. J. King, Aylesbury, had the best double Zonal, Charles Barnard; and Mr. Wiggins was first with a single Zonal, Emily Little.

First-class certificates were awarded to the following varieties:—

SHOW VARIETIES.—*Review Royal* (Foster).—Flower large and even, upper petals dark maroon, lower salmon scarlet streaked with a darker shade, centre white; truss full and habit compact. Shown by Mr. C. Turner.

Diadem (Foster).—Upper petals black with a narrow scarlet margin, lower bright scarlet with a few darker lines, centre white. A beautifully formed flower of good substance. Shown by Mr. C. Turner.

Morning (Foster).—Flower of great size, symmetrical and bold; upper petals maroon shading to a scarlet margin; lower petals rich glowing scarlet, centre white. A handsome variety. Shown by Mr. C. Turner.

FANCY VARIETY.—*Irene* (Turner).—This was the only variety in that section which was certificated. The flowers are of moderate size, the upper petals rosy crimson, the lower white spotted with purple; the trusses are compact, and habit vigorous.

DECORATIVE VARIETIES.—*Vesuvius* (W. Brown, Hendon).—One of the most effective of this class, with large flowers of a deep rosy scarlet colour, the upper petals having a black blotch in the centre of each. It is very floriferous, and of sturdy compact habit.

Princess of Wales (Hayes).—One of the most distinct and pretty in the section. Flowers of moderate size, streaked with rosy crimson on a white ground, centre white; trusses large, and freely produced. Shown by Mr. Little.

Little Pet (Little).—A showy variety with bright scarlet flowers a little lighter at the margins, prettily crisped; trusses large, and produced in great numbers.

Madame Marie Knecht (Lemoine).—Flowers white with a few pink spots in the upper petals, the margin being much waved; trusses extremely full and fine; habit of plant compact.

Gold Mine (J. & J. Hayes).—Flowers very large, scarlet with a white centre, and a dark blotch on the upper petals. Extremely floriferous.

ZONAL VARIETIES (Single).—*Lynette* (Denny).—Flower very large, with fine rounded petals of a delicate pink colour, shading to a white centre; habit vigorous, and trusses full. Shown by Mr. Catlin.

Edith Little (Pearson).—A very handsome flower, of great size and substance, and beautifully regular form; colour bright pink, centre white; trusses large, and remarkably compact, without being crowded.

Mrs. Gordon (Pearson).—A most effective variety, with large brilliant scarlet flowers and a clearly defined white centre, which rendered the brightness of the petals more noticeable; trusses fine, and freely produced.

Miss Blanche (George).—Flowers rich rosy pink, in trusses of considerable size; habit strong and floriferous. An attractive variety.

Improved White Clipper (Cannell).—A dwarf compact variety, with large trusses of pure white well-formed flowers. It is very floriferous, and will doubtless prove useful either for culture in pots or bedding out.

ZONAL VARIETIES (Double).—*Lovely* (Denny).—Flowers very full, salmon pink, nearly white in centre; trusses of great size; habit vigorous. Shown by Mr. Catlin.

Aglaia (Pearson).—Very distinct and attractive. Flowers extremely full, crimson scarlet; trusses compact and large. Shown by Mr. Little.

Grand Chancellor Faidherbe (Lemoine).—A handsome dark scarlet variety, the flowers very large and full; fine globular trusses. Shown by Mr. Little.

Urania (Pearson).—A showy variety with abundant bright rosy pink flowers in large trusses; habit dwarf and compact. Shown by Mr. Little.

Gambetta (Lemoine).—Flowers large and full, very bright scarlet; trusses fine and compact. Shown by Mr. Little.

Duchess of Albany (Saltmarsh).—An excellent pink variety with very full large flowers; habit vigorous.

IVY-LEAVED VARIETIES.—*Comtesse Horace de Choiseul* (Lemoine).—A fine double variety. Flowers very full, and large bright pink. Habit strong, and the fine trusses were produced very freely. Shown by the Royal Horticultural Society.

Comte Horace de Choiseul (Lemoine).—Another handsome double variety with extremely large flowers of a peculiar warm rose tint. Shown by the Royal Horticultural Society.

Miscellaneous groups were staged by the following:—Messrs. H. Cannell & Sons contributed a large and beautiful group of Pelargoniums, the margin being formed of a band of Pansy Cloth of Gold, and the back row of spikes of Delphinium; but an adjoining group of Pansies and Violas in lines upon a ground of Selaginellas, with a background of Fern fronds and a margin of Nertera depressa, was greatly admired by the visitors, the novelty of the arrangement being very striking. Mr. B. S. Williams had a large group of plants comprising some beautiful Allamandas, Dipladenias, Clerodendrons, Bougainvilleas, Palms, Crotons, Dracenas, with many choice and new plants. Messrs. J. Laing & Co., Forest Hill, had a beautiful group of Tuberos Begonias, with Palms and Ferns. Mr. J. R. Pearson, Chilwell Nurseries, Nottingham, exhibited an extensive collection of Zonal Pelargoniums, including a large number of handsome varieties. Messrs. W. Paul & Son, Waltham Cross, exhibited six boxes of fine Rose blooms, comprising a large number of excellent varieties. Messrs. G. Paul & Son, Cheshunt, had a large group of Roses in pots, all remarkably healthy and well flowered; and Messrs. J. Veitch & Sons, Chelsea, contributed a collection of twenty-four varieties of Peas.

VIOLAS—THEIR EXTENDED CULTURE.—I should like to interest your readers, especially in the south, still more in those lovely flowers. At Manchester and in several unpromising districts of Lancashire last year I saw some splendid blooms of kinds I was hitherto unacquainted with. Almost invariably I found on inquiry they came from Scotland. There may be something in the climate, but I am inclined to think nothing insuperable. There is hardly a

garden north or south without some portion shaded a little, that can be kept moist and the soil made tolerably rich. Except care and trimming-in, if possible, yearly propagation and at least once re-making the beds, I believe *Violas* can on those conditions be most satisfactorily grown; indeed, without any pretence to a collection, I find I can thus manage to have blooms for several months much more easily than on my Show Pansies. That they succeed admirably in Dublin I have had testimony in a glorious box of blooms from Sandford Hill on yesterday.—W. J. M., *Clonmel*.



KITCHEN GARDEN.

FRENCH Beans may yet be sown on warm borders for late use, and those advancing should be well supplied with water in dry weather, similar remarks applying to **Runner Beans** and late crops of **Peas**. For the last sowing of early varieties of **Peas** sheltered situations must be chosen, but where due provision has been made to ensure a proper supply of the later sorts this will not be necessary. Sow a good breadth of **Parsley**, as it generally stands over next spring without running; and where **Parsley** is much in request in winter, some may be sown in a pit according to the demand, to be covered with glass as cold weather sets in. For the present small sowings of **Turnips** will suffice, also of **Spinach**, **Lettuces**, **Radish**, and **Mustard** and **Cress**. Where young **Carrots** are in constant demand the **Early Horn** section may yet be sown, and will prove useful late in the season.

Plant out **Leeks** in well-manured trenches, so as to admit of earthing up. With favourable weather continue to plant out **Cauliflowers** for late summer use, **Brussels Sprouts**, **Savoy**s, and **Broccoli**, also the **Kales** or **Borecoles** of various kinds. Earth up early crops of **Celery**, and plant out for succession, supplying water freely. Keep the surface soil stirred about crops admitting of the process, not allowing weeds to make headway. Attend to nailing and tying up **Tomato** plants as they advance in growth, removing all side shoots when the requisite number of fruiting shoots are obtained. Train and thin out **Ridge Cucumbers**, training **Vegetable Marrows** evenly over the surface as they advance in growth, and give water freely in dry weather.

FRUIT HOUSES.

Vines.—The principal work in vineries now consists of keeping the lateral growths within reasonable bounds, and the borders moist. Thinning late **Grapes** should be brought to a close as soon as possible. After as much foliage has been produced as can be exposed to light, keep the laterals closely pinched to one joint of growth as formed, and see that **Vines** swelling their crops have liberal supplies of water. The light and dry inside borders made upon modern systems can hardly have too much water when the **Vines** are swelling off their crops, and outside borders, as a rule, do not receive sufficient in dry seasons; therefore afford liquid manure abundantly, and mulch with rich material to encourage surface roots. Late **Hamburgs** need not have fire heat, or only to prevent the temperature falling below 60° at night, and to maintain it at 65° to 70° by day in dull weather; but those that require a long time to ripen, as **Muscat of Alexandria**, **Lady Downe's**, **Gros Colman**, **Gros Guillaume**, &c., should have sufficient fire heat to prevent the temperature falling below 65° at night, and to keep it at 70° to 75° in the day; and as the fruit of these will have to hang through the winter they will require to be thinned more than midseason **Grapes**; indeed **Hamburgs** for late use will need rather more thinning than earlier ones, otherwise they cannot be expected to keep well when a cold damp atmosphere has to be contended with. Give plenty of ventilation with fire heat to **Vines** that are colouring, but with a heavy crop allow the temperature to fall to 60° at night, and do not restrict the laterals, but lose no opportunity of affording a free circulation of air.

After dull warm weather pay particular attention to ventilation, as with bright sun there is danger of scalding the berries and scorching the foliage, which is best avoided by ventilating a little during

such weather, even if fire heat must be employed to allow it; and on fine mornings it will be necessary to ventilate early, so as to have the foliage dry before the sun acts powerfully upon it. Varieties peculiarly liable to scald, such as **Lady Downe's**, should from stoning to colouring commencing have a light night temperature, with abundance of air in the daytime. Early **Vines** from which the **Grapes** have been cut must be well syringed every evening to keep the foliage clean and healthy as long as possible, allowing a moderate extension of the laterals, especially to **Vines** that are weakly.

Attend to young **Vines**, and keep the roots near the surface by frequently watering over the mulching, and encourage the feeders from the stem by renewing the mulching as necessary. **Vines** in pots intended for very early forcing have completed their growth and should have less moisture, discontinuing syringing, and allowing free exposure to air and sun.

Melons.—Plants that have been cleared of their crops should be removed unless they are healthy and justify the taking of a second crop from them. In the latter case as much of the old growth should be cut away as is necessary to give the young shoots space for development, the loose surface soil being removed down to the roots, and a surface dressing of rich lumpy material given, supplying tepid water, keeping the atmosphere moist, and shading if necessary from bright sun. In the case of removing the plants all the old soil should also be taken out, and where bottom heat is obtained from fermenting materials only, a portion of that should be removed and a little fresh worked in, which will revive the bottom heat sufficient for the time of year. Plant on hillocks or ridges, and maintain a moist atmosphere. Pot off seedlings, and keep them sturdy by keeping them in a light position duly ventilated. Avoid overcrowding young plants, removing every alternate lateral whilst they are quite small, and pinch those retained for fruiting at the second joint if they do not show fruit, and stop the principal shoots when they have extended two-thirds their allotted space. Fertilise the female flowers as they expand, stopping one joint beyond the fruit. Keep a dry, warm, well-ventilated atmosphere during the setting period, also where the fruit is ripening. Plants with their fruit swelling should be well supplied with water at the roots, and syringed overhead if in frames or pits in the afternoon of fine days, earthing over the roots, and keeping the laterals closely pinched. If cracked fruits appear lessen the supply of moisture both to the roots and in the atmosphere, and cut the shoot about half through below the fruit. Look well after canker at the collar, and keep that part free of moisture and of leaves overhanging it, and rub quicklime well into the affected parts.

Cucumbers.—Steady and constant perseverance with close and regular attention are essential to a healthy and fruitful condition of the plants. Examine the plants frequently, removing the old growths and encouraging young ones in their place, stopping one or two joints beyond the fruit, bearing in mind that nothing is gained by overcrowding or overcropping. Fumigate upon the first appearance of aphides, having the foliage dry, and repeat it on two or three consecutive evenings moderately. A few seeds sown now will afford plants for August which will give a supply of fruit in September, and for some time afterwards, even in dung-heated pits or frames, if linings are given in due time with protection over the lights when the nights become cold.

PLANT HOUSES.

Stove.—The earliest-flowered **Ixoras** if now placed in a brisk heat will flower again, and be very useful for cutting during the autumn. If the pots are filled with roots afford liquid manure once a week, giving it clear and weak. *I. coccinea* and *aurantiaca* are the best varieties for this purpose, as they produce their flowers freely. For flowering in winter few plants equal the neglected **Jasminum Sambac flore-pleno**, which should now be encouraged to make growth in a light position, so as to solidify the growth, keeping red spider under by frequent syringing. **Stephanotis** in young plants for next season's flowering should have their shoots trained near the glass. Plants of **Clerodendron Balfourianum** that have flowered should, if young and wanted larger, be at once placed in heat, and be shifted if necessary into larger pots, employing good turfy yellow loam.

Train the young shoots on strings near the glass, and the wood will be well matured and give double the quantity of bloom to that trained at a distance from it. The comparatively new *Jasminum gracillimum* promises to be one of the most useful winter-flowering plants for cutting from so as to solidify the growth; from its graceful habit and its fragrance it is of great value for decoration. Keep *Eucharises* in growth well supplied with liquid manure, as the stronger the growth is the finer and more numerous the flower scapes will be.

THE BEE-KEEPER.

HONEYDEW.

THE nature and source of honeydew has long been a subject of difference among bee-keepers, some contending that it is really a form of dew deposited on leaves in certain states of the atmosphere, while others maintain that it is a product of the leaves themselves exuded from certain pores on the surface. A third and more numerous section hold that what is commonly known as honeydew is neither more nor less than the excreta of some aphid that is at the time feeding on the plants under which the sweet liquid is found. As the result of years of close attention I have no hesitation in accepting the last as the true theory, unwellcome though it may be. How pleasant would it be were we able to say our combs were filled with nectar distilled from the heavens like the manna of old, real "Angels' food," and only 1s. 6d. a pound! I do not deny that such may be, but I can say I have never seen it; and I can say further, that every time I have observed my bees storing "honeydew" I have succeeded in tracing it to the aphides. Neither do I deny that certain leaves and stems at times exude sweet juices, for I have seen my bees more than once gathering such from what appeared to be minute glands on leaves, particularly the Laurel. The quantity thus collected is, however, very small, and I doubt if ever it has been tasted in quantity by anyone. So-called honeydew is, however, at certain seasons very abundant, so much so as to fill the hive and supers and be marketed as honey in quantities sufficient to disgust the consumers with the very name of honey. To guard bee-keepers against such a blunder I now draw attention to this subject, hoping at least to get credit for good intentions from those who differ from me on the subject.

And first I shall describe the appearance of "honeydew" in bulk. The combs containing it have a darker tinge than when filled with ordinary spring honey, but it is when extracted in quantity that the true colour of the liquor can be best observed. It has a dark colour, between that of treacle and golden syrup. It has very little smell; indeed it has no honey smell at all unless from any admixture of honey that it may chance to have. It has no honey flavour, and not even great sweetness, resembling a low grade of golden syrup. Usually it is rather thin and ferments badly after a few weeks; but I have lately extracted it when newly scaled and found it even thicker than Heather honey, and almost as difficult to throw from the cells. When newly gathered it forms an excellent food for the bees, and they breed on it amazingly; but when kept for winter stores it is usually very detrimental, and bees that stored it largely in autumn have been found to dwindle badly even into the following June. What may be the result in wintering with such thick and apparently wholesome stores as I have lately had experience with I cannot yet say, but shall take means to discover.

And now for experience. In former years, generally in cold summers with abundant moisture, I have had occasional gluts of "honeydew," and I then traced it to the aphides on the Oaks and Beeches around. Since I came to this place in 1878 I have never seen any quantity of this stored until this season; and there being neither Oaks nor Beeches around, I did not at first suspect the nature of the "honey" that in the end of May and beginning of June was glutting my hives. When I found that at the same time neighbours' hives at a distance of half a mile were almost starving, and that all over the country the complaint was general of want of food in hives, I set to work to trace the source of my stores. From the quantity of white pollen I had lately seen I conjectured that an unusual display of wild Hyacinths in a coppice half a mile off was the source, and as my bees nearly all were lined in that direction I struck out thither. On the way, however, and within 200 yards of my garden, I had to pass through a young Fir wood, the trees being about 8 feet high. Here I was at once arrested by the hum of bees, and to my amazement found my

Ligurians working on every spray. The trees were glistening as with dew drops in the morning sun. "Can this be where they get their water?" I asked. Collecting a larger drop than usual on the point of my finger I tasted it, and it was sweet. So large were the drops that I frequently saw a bee load up and depart without finishing the drop. I never saw a similar occurrence before, and for some time was doubtful as to whether the dew theory or the exudation theory were not right after all, for insects I as yet saw none. I was searching for aphides, green or black, on every twig, and was about to give it up when I at last saw the cast skin of an aphid. Being now certain of success I looked still more closely, and found myriads of, to me, a new insect. I had seen them frequently during this search, but took them for little buds or protuberances from the stem—one being fixed at the base of each spine and continuing motionless. They were the exact colour of the woody stem, slightly bronzed, and varied in size from mere mites to grains of Wheat. With their probosces inserted at the junction of the spine and stem they steadily sucked and grew, every now and then ejecting a drop of clear liquid. This, then, was the source of my abundant stores. Doubtless other observers have been deceived, as I almost was, by the imitative colour of these aphides, and have pronounced the liquid found on the leaves, or even on the stones beneath, as independent of insect action, and thus erroneous ideas have spread.

What to do with such stores is a question of some moment to bee-keepers. As soon as I had extracted a few sample pounds to decide as to its quality, I saw that it would never do to have it stored in supers. I therefore at once removed the few sections in which I had bees at work; and as it had proved itself an excellent breeding food, though of doubtful value for winter stores, I resolved to make frequent examinations of all my stocks and persistently unscal every inch of scaled stores. By repeating this every third day I have succeeded in almost compelling the bees to make use of it at once, and what now remains is so largely mixed with the honey from Raspberries, now so abundant, that I have no fear of any bad results.

Fortunately the sudden advent of abundance of Raspberry bloom, and a heavy shower now and then, have combined to lure the bees from the Scotch Firs and enable me to commence supering in earnest. At this date (June 16th) Clover is just out, but bees are generally very weak, and not one hive in twenty is fit for supering.—WILLIAM RAITT, *Blairgowrie*.

BRITISH BEE-KEEPERS' ASSOCIATION.

A MEETING of the Committee was held at 105, Jermyn Street, on Wednesday, June 14th. There were present Mr. T. W. Cowan (in the chair), Rev. E. Bartrum, Hon. and Rev. H. Bligh, Rev. F. T. Scott J. M. Hooker, D. Stewart, and Rev. H. R. Peel, Hon. Sec. The minutes of the previous meeting were read and confirmed. The balance sheet for the month ending May 31st showed a balance in hand of upwards of £60. The Honorary Secretary reported that he had received a large number of replies in response to his letter inserted in the current number of the "British Bee Journal" from persons who were anxious to obtain certificates for proficiency in the knowledge of the modern methods of bee-keeping, and to qualify themselves to act as experts for county associations. It was resolved that examinations be held annually at the time of the annual show at South Kensington, and that first, second, and third-class certificates be granted to candidates according to the report of the examiner.

The Chairman, Mr. D. Stewart, and the Honorary Secretary were elected as a sub-committee to draw up rules and make the necessary arrangements for the first examination to take place at South Kensington on Monday, August 7th. We are requested to state that all communications requiring an early reply should be sent to the Assistant Secretary, Mr. J. Huckle, King's Langley, Herts.

TRADE CATALOGUE RECEIVED.

John Warner & Sons, Cripplegate, London, E.C.—*Catalogue of Water Wheels, Water Motors, and Water-power Machinery (Illustrated).*



** All correspondence should be directed either to "The Editor" or to "The Publisher." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

To Correspondents.—We are compelled to postpone the publication of replies to several letters until next week.

Mildew on Peaches (*T. Hinds*).—As sulphur has failed to destroy the mildew try the effects of Ewing's composition or paraffin and soapsuds, half a wineglassful of the former to a gallon of the latter. Your trees, however, appear to require fresh soil, and will never be satisfactory until they have it.

Vine Roots Dying (*W. J.*).—Gas lime used in excess would cause the injury of which you submit an example. We should remove a portion of the soil just down to the roots without disturbing them, and add a top-dressing of decayed manure; this if kept moist would quickly induce the emission of roots, which might aid the Vines to mature a fair crop of Grapes. Immediately the crop were cut we should remove the soil, and place the roots in suitable compost.

Camellia Unsatisfactory (*Subscriber*).—If the "barking" is only present on the stems where the leaves are yellow it is the result of a lack of vigour, and not the cause of the discoloured leaves. The bark has simply shrivelled and decayed in places, and possibly the young shoots have been scorched. If the bark is healthy where the leaves are green shorten the sickly shoots to good buds, and with proper treatment the succeeding growths will probably be healthy.

Roses Injured (*A. H.*).—We believe the injury has been caused by birds in their search for insects. If there were aphides on the stems you may be certain this was the case. We have seen numbers of Carnation flowers broken off as the result of birds picking off the insects and injuring the flower stems. When the insects were destroyed the birds ceased their nibbling and no more flowers were broken. Apply a solution of softsoap and tobacco water or quassia water to the stems and the injury will cease.

Strawberry Depredators (*Stroud*).—We know of one gardener who has great trouble with field mice, which take the fruit in large quantities and cause much annoyance. Whether it is the mice that gather the fruits in your case, pile them in heaps, and eat out the seeds, we are unable to say; neither do we know whether hedgehogs, of which you have several, are addicted to such practices. Perhaps some of our readers can give information on the subject of which you complain. Whatever the pilferers may be they are not bad judges, as they only select the British Queen for storing, leaving the other varieties untouched.

Rose of Sharon (*Mrs. Lucy*).—You were not likely to find this plant in Rose catalogues, as it is not a Rose at all. In many districts the St. John's Wort, *Hypericum calycinum*, is known as the Rose of Sharon. It is a hardy plant of rather trailing habit, growing about a foot high, and bearing large yellow flowers with numerous prominent stamens. It is useful for covering dry banks in pleasure grounds and for planting under trees, as few plants flourish better in the shade than this does, but flowers are not produced so freely as in an open position.

Vines not Bearing (*W. A. B.*).—Judging by the specimens sent the growth of your Vine is over-luxuriant, and the wood has not been matured. Are not the laterals too crowded? We suspect they are, but you do not say anything relative to the distances of the Vines apart and the laterals on the rods. If every leaf is fully exposed to the light we should certainly expect such growths as the one before us to produce fruit. Train the growths thinly, and do not prune closely in winter if the canes are very strong. Had you stated the particulars we have indicated, and your method of winter pruning, we could probably have given a more satisfactory reply. The foliage is very fine and clean, and the Vines ought to bear good fruit, and will do so under proper management.

Phlomis fruticosa (*Beuford*).—The plant, of which you send a specimen, is commonly known as the Jerusalem Sage, and it succeeds well in any ordinary garden soil of moderate depth. It also succeeds well on a rockery, and when well established it is a most ornamental plant in such a position.

Summer-pruning Currants (*Notts Vicar*).—You are quite right; it is not necessary, and would be injurious, to prune Black Currants in summer the same as is advised for the red and white varieties. Even some thought must be exercised in pruning these, especially when the work has been deferred until the bushes are crowded with growths, and the weather at the same time is hot and dry. To prune very severely under those circumstances is a mistake, as the great check given to the sap and the sudden exposure of the fruit to the sun may cause it to ripen prematurely, and be consequently small. We once saw the fruit shrivel on some bushes that had been too closely pruned during very hot weather. A great portion of the breastwood may be removed without unduly exposing the fruit. If three or four good leaves are left at the base of each shoot they will be sufficient for every purpose; but if pruning is long postponed the lower leaves are imperfect, and fall off when the shoots are closely shortened. The terminal growth may also be shortened to a length of about 9 inches. If the work is done with thought and care the bushes will be benefited by being pruned in summer. A few growths may occasionally with advantage be thinned out of Black Currant bushes that are likely to be much crowded, but this is seldom necessary when they are growing in open positions where there is a free circulation of air.

The Old Yellow Rose (*Lady Mary Gordon*).—The blooms you have sent are, we believe, of the true old yellow Rose, *Rosa sulphurea*, and you are acting wisely to preserve and increase it. Parkinson in his "Paradisus," published upwards of 250 years ago, says:—"The double yellow Rose, first was procured to be brought into England, by Master Nicholas Lete, a worthy Merchant of London, and a great lover of flowers, from Constantinople, which (as we heare) was first brought thither from Syria; but perished quickly both with him, and with all other to whom hee imparted it; yet afterwards it was sent to Master Iohn de Franqueville, a Merchant also of London, and a great lover of all rare plants, as well as flowers, from which is sprung the greatest store, that is now flourishing in this Kingdom." We have previously explained that the term "sulphurea" does not sufficiently represent the colour of the flower, which is almost as bright as the yellow Crocus. Even if it is scentless it is nevertheless desirable that this distinct old Rose be increased, as it is, perhaps, the brightest and fullest of all yellow Roses.

Auriculas Lord Lorne and Duke of Argyle (*Alfred*).—Mr. Douglas,

and we know of no better authority, writes as follows on these varieties:—"These are two reds, or reddish crimson selfs raised by Mr. Campbell of Falkirk. They have both mealed foliage, that of the Duke being much smaller than that of Lord Lorne; the Duke is also very slow to increase. I obtained a plant of Lord Lorne, and in three years our stock of it was not less than thirty plants. In three years a plant of Duke of Argyle has not produced one offset. The last named is certainly the best, the colour is richer and darker, the flowers being better formed. Lord Lorne will give from twelve to twenty flowers on a truss, while the Duke has seldom more than six or eight. Mr. Campbell was very proud, as well he might be, of his crimson selfs. When I saw him about seven or eight years ago he was anxiously trying to obtain a crimson-coloured Auricula with green foliage, but he has evidently not been successful. I have also tried, but have failed, to obtain a really good one. Duke of Argyle ought to be surpassed in its colour, as the petals are notched, which is a serious fault. Mr. Simonite of Sheffield exhibited a better crimson at South Kensington, for which he had a first-class certificate; it is as good a colour as Campbell's best variety, and the petals are not notched."

Ventilating Vinery (*Gardener*).—It is utterly impossible for anyone to state a time for opening and closing vineries. The principle of ventilating has been frequently advanced, and detailed instructions, such as you require, given in our "Work for the Week" columns. Mr. Taylor has also recently referred to the subject with great minuteness. Read what he has said on "Giving Air," and adopt the same practice. We can only say briefly that the moment the temperature commences rising in the morning a little air should be admitted, increasing the ventilation in advance of the increasing heat until the maximum day temperature is reached; and when the heat commences declining in the afternoon reduce the ventilation, so that the maximum heat is maintained as long as possible, closing the house as soon as you can, provided the temperature afterwards does not exceed 85°. The precise time for opening depends entirely on the weather and the aspect of the vinery.

Laxton's Pioneer Strawberry (*Thickhead*).—You say the answer we gave to a correspondent on page 479 does not satisfy you. Possibly not, but "G. P." for whom it was intended, has not expressed his dissatisfaction. As written descriptions, however accurate they may be, do not appear to make even

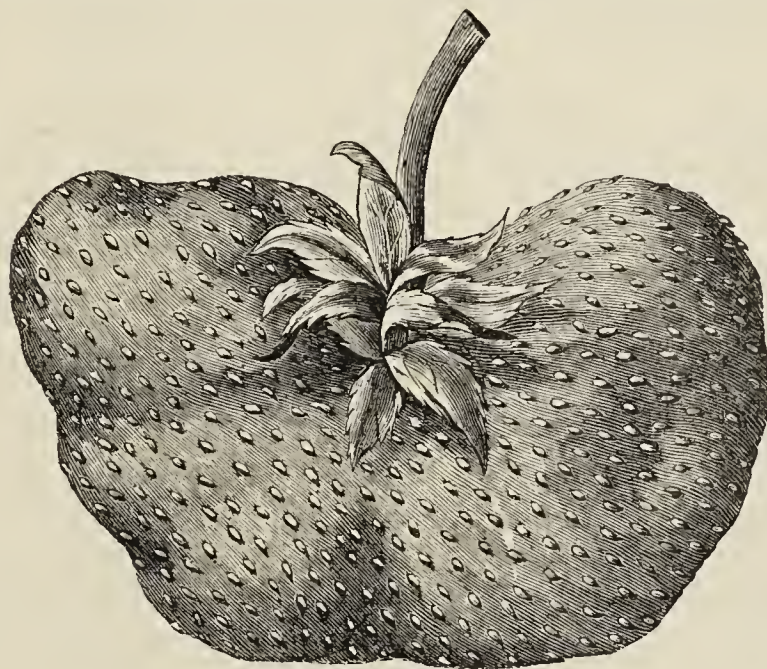


Fig. 109.

a simple subject clear to all, we make an effort especially for you, to represent this Strawberry intelligibly. If you examine the illustration and read again the description you will possibly comprehend. You would, perhaps, also like to read what Mr. Laxton has said from his experience gained two years ago:—"My Pioneer is the largest and finest of all the early varieties, immediately succeeding Amy Robsart, and I think will be found a great advance on Keens' Seedling. From many quarters I hear it is rapidly gaining in favour both as a garden, market, and forcing Strawberry. I send you a fruit gathered a few days after the first of Amy Robsart, weighing 1 oz. 5 drachms, and exactly 3 inches in diameter. There is a Strawberry, received from Messrs. Ellwanger & Barry, of Rochester, N.Y., raised by Mr. Durand, also named Pioneer. It has also a great reputation in the United States as an early variety, but it has not yet fruited with me." The engraving is of the fruit referred to, but all the fruits do not assume this shape any more than all the Keens' Seedlings grow conical. What a curious pseudonym you have adopted!

Syringing Vines (*A. C.*).—No particular method of treatment is applicable to all cases and all districts. We have grown Grapes for years without systematic syringings and without red spider, but we damped the vineries twice or thrice a day according to the weather, and gave the Vines a few very heavy syringings during the season to cleanse the foliage from accumulations of soot and dust that found their way to the leaves. In some districts in which red spider abounds some thoroughly competent Grape-growers find syringing essential; but we have no hesitation in saying that more injury is done by too frequent syringings than too few, and we are convinced the atmosphere of many vineries is kept too moist. A close and damp atmosphere encourages mildew, and especially if the Vines are also dry at the roots. We cannot name the Strawberry, the fruits were much injured in transit.

Names of Fruit (*H. S.*).—It is almost too much to expect us to name green Gooseberries without informing us of the colour of the fruit when ripe. We think, however, we are able to identify the variety as Massey's Heart of Oak, of which the following is the description in the "Fruit Manual":—"Large and oblong, tapering to the stalk. Skin thin, green, with yellowish veins; rich and excellent. Bush pendulous, and an abundant bearer."

Names of Plants (*W. H. Myers*).—We have many times stated that our rule is only to name six specimens at once, and such poor examples as you have sent are difficult to identify. If you send more Grasses please let them be larger and

characteristic examples, and their names can be given with greater confidence; the following, however, we believe are correct:—3, *Festuca rubra*, Red Fescue Grass; 5 and 10, *Poa pratensis* var. *subcaerulea*, blue form of the common Meadow Grass, No. 16; 8, *Avena pratensis*, the Meadow Oat; 11, *Cynosurus cristatus*, Crested Dog's-tail Grass; 12, *Trisetum flavescens*, Yellowish Oat, a stunted form; 13, the normal form of the preceding; 15, *Bromus mollis*, Soft Brome Grass. (*J. H. E.*)—*Ophrys apifera*. (*J. Turner*).—*Andromeda floribunda*, a North American evergreen shrub, requiring the same treatment as *Rhododendrons*. Remove the flowers as they fade, and encourage fresh healthy growths by applications of water if needed, and these will produce flowers another year. (*A. M.*)—The box was little else than a mass of loose petals. We cannot undertake to name Roses, as many so closely resemble each other that without actual comparison in a nursery the names cannot be satisfactorily determined. If you take flowers to a nursery where Roses are largely grown you will obtain the names of most of them. (*H. T. W.*)—1, *Begonia metallica*; 2, *Tradescantia discolor*. (*Beaford*).—*Phlomis fruticosa*. (*F. S.*)—*Echium vulgare*.

Swarming—Returning Parent Hives (*James Hiam*).—The movements of your bees may well puzzle you. The swarms that return to the parent hives after alighting and settling on a tree, or after being hived, have left their queens behind them. Sometimes queens do not go with the swarms in their first emergence, and some queens are unable to fly. They fall off the flight-board and crawl about till the noise of the returning swarms attracts them to the hive. This, of course, may happen repeatedly. Swarms that take queens with them are often whimsical, and decline to work in hives given to them; but these do not return to the parent hives, but seek a new home. They may alight on a tree and remain a short time, but their bent is to find a comfortable home in the roof of a house, cavity of a tree, or in a dead or deserted hive. Touching the supering of your hive, you cannot do better than put on your boxes with comb foundation in them.

COVENT GARDEN MARKET.—JUNE 28TH.

LARGE supplies have reached us during the week, Strawberries especially making a good appearance, and showing signs of as heavy a crop as we have had for some few years past. A good trade has been doing at lower prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	0 0 to 0 0	Grapes.....	lb.	2 0 to 4 0
Apricots.....	box	1 6 2 0	Lemons.....	case	15 0 20 0
Ditto.....	"	1 0 2 0	Melons.....	each	2 0 4 0
Cherries.....	½ sieve	6 0 9 0	Nectarines..	dozen	4 0 12 0
Chestnuts.....	bushel	0 0 0 0	Oranges.....	100	4 0 6 0
Currants, Black..	½ sieve	0 0 0 0	Peaches.....	dozen	4 0 12 0
" Red.....	½ sieve	0 0 0 0	Pears, kitchen..	dozen	0 0 0 0
Figs.....	dozen	6 0 8 0	Pears, dessert..	dozen	0 0 0 0
Filberts.....	lb.	0 0 0 0	Pine Apples, English	lb.	3 0 4 0
Cobs.....	100 lb.	45 0 50 0	Strawberries ..	lb.	0 6 1 0
Gooseberries....	½ sieve	2 6 0 0	Walnuts.....	bushel	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	3 0 6 0	Mustard & Cress..	punnet	0 2 0 2
Beans, Kidney....	100	1 3 1 6	Onions.....	bushel	3 6 0 0
Beet, Red.....	dozen	1 0 2 0	Pieklings.....	quart	0 0 0 5
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	3 0 4 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Potatoes.....	cwt.	10 0 0 0
Capicums.....	100	1 6 2 0	Kidney.....	cwt.	10 0 14 0
Carrots, new.....	bunch	0 6 1 0	Radishes..... doz.	bunches	1 0 0 6
Cauliflowers.....	dozen	3 0 4 0	Rhubarb.....	bundle	0 4 0 6
Celery.....	bundle	1 6 2 0	Salsafy.....	bundle	1 0 0 0
Coleworts..... doz.	bunches	2 0 4 0	Scorzonera.....	bundle	1 6 0 0
Cucumbers.....	each	0 4 0 6	Seakale.....	basket	0 0 0 0
Endive.....	dozen	1 0 2 0	Shallots.....	lb.	0 3 0 0
Fennel.....	bunch	0 3 0 0	Spinach.....	bushel	3 0 0 0
Garlic.....	lb.	0 6 0 0	Tomatoes.....	lb.	0 6 1 0
Herbs.....	bunch	0 2 0 0	Turnips, new.....	bunch	0 6 0 0
Leeks.....	bunch	0 3 0 4			



POULTRY AND PIGEON CHRONICLE.

THE SHORTHORNED BREED OF CATTLE.

(Continued from page 525.)

THERE appears to have been a great contest between the old Longhorns and the cattle which held the local name of "Teeswaters." The Shorthorns to which the Holderness, a large-framed breed of great milking capacity, seemed to bear the most affinity in character, had a strong hold in the district of Durham some years before the close of the last century. It was not until the Durham ox, also called the Ketton ox, of Mr. Charles Colling's, to which we have before alluded, his live weight being 216 stones of 14 lbs., commenced his six years' caravan life in the year 1801, in which he was shown throughout every district in England, that the doom of the Longhorns was virtually sealed. Without

doubt this splendid animal, which was seen by all cattle breeders of the period, must have left an impression on their minds favourable to the breed to which he belonged, just as such an ox would produce now upon the minds of breeders of the present day. We are sorry to think that it is not likely they will ever see a similar one, for it is well known that such an animal has never been seen since the death of the Ketton ox, which was slaughtered at Oxford through his hip being dislocated. As these facts mark a period in the Shorthorn history of the highest importance, we shall now endeavour to lay before the home farmer the record of cattle sales from that of Mr. Charles Colling's in the year 1810 up to the present period, at the same time giving such information connected therewith as will furnish full particulars of the enormous increase of this breed of cattle, both as to numbers and their money value, not only in England but in America, some of the continental States, and our colonies, in which many of the very choicest animals have found a home.

To show the antiquity of the breed of Shorthorns sold at the first sale of great importance—that of Mr. Charles Colling at Ketton in 1810—it is recorded that the admirers of the style and type of the tribe called the Princesses make good the claims of long descent as far back as 1739, on Stephenson's farm, the then occupier of Ketton; and it is also said that the ancestress of the Duchesses roamed in Stanwick Park two hundred years ago, and that none of the tribe had been out of the Northumberland family until Charles Colling bought them. At the Ketton sale in 1810 the taste for Shorthorns was as yet confined within somewhat narrow limits, such as Durham, Yorkshire, Lincolnshire, Northumberland, and Westmoreland, and breeders from these counties were the only purchasers. Mr. Henry H. Dixon, in his prize essay on the "Rise and Progress of Shorthorns," published in the Journal of the Royal Agricultural Society of England in 1865, states that "Some of the few survivors of the assembly on the day of sale that Comet, which made one thousand guineas, still speak of him as the most symmetrical bull they had ever seen, although not a very large animal." This circumstance opened up a new era as to the value of well-bred Shorthorns; for, although it is related that some years previous to this sale the celebrated Mr. Bates had been breeding Shorthorns by the Tyne side, still he does not seem to have struck out any special line for himself until he took up his fancy for the Duchess tribe. Charles Colling assured him that the cow which he bought in 1784 out of Stanwick Park, and to which we have before alluded, was the best he ever saw, and sold him her great grand-daughter Duchess by the Daisy Bull (186). She was the prelude to Mr. Bates's purchase of Duchess 1st by Comet (155), the only Duchess at the Ketton sale, and very cheap at 186 guineas, as, independently of her produce, her new owner has left it on record that she gave 14 lbs. of butter (21 ozs. to the lb.) per week for six weeks after calving. It is further stated that Belvedere (1706) of the Princess tribe was the bull which Mr. Bates selected to "bring out the Duchesses," the now celebrated and most valuable tribe in existence, as we shall show further on when giving particulars of the sale of Shorthorns in America, which has been justly styled the sale of the century as regards extreme values.

We must not, however, omit the record that Robert Colling, the brother of Charles, was also a celebrity of the period, for they were generally spoken of as the brothers Colling, whose aim in cattle-breeding was to reduce the size of their animals but improve the general symmetry and flesh points. Still no one contributed more towards Shorthorn progress than Mason of Chilton, who in breeding his cattle got rid of the open shoulders and improved the fore-quarters generally without shortening the hindquarters or without reducing the breadth of back and sirloin. We now must allude to the next important sale, which was held at Wynyard (the cattle being the property of the late Sir H. V. Tempest, Bart.) October 5th,

1813. In looking over the record we find that Lot 1 was the celebrated cow "Princess." She was thirteen years old, was bought in, and died at Wynyard. The twenty-four animals sold realised the sum of £1618 1s. The photograph of the sale bill we have before us, and it appears that the widow of Sir H. V. Tempest (who enjoyed in her own right the title of Countess of Antrim) caused this cow Princess, the venerable herd-mother, to be bought in, and she died where she spent her prime—at Wynyard. The next sale in point of time is that of Mr. George Parker of Sutton House, near Malton, Yorkshire, a large contributor to the first volume of the "Herd Book," which was held on March 24th and 25th, 1817, when forty-one animals of the purest Shorthorn blood were disposed of. Again, on April 10th and 11th in the same year we find reported a catalogue of the improved Shorthorned cattle on the farm of Mr. Robert Chaloner at Waterfall, near Guisborough, when fifty-five cattle of various ages were disposed of, and the great importance of the notes and names of the choicest and most valuable animals of the period given at the two sales seems to furnish the requisite links in the genealogical chain connecting the pedigree of certain valuable Shorthorn families with the commencement of Coates's "Herd Book," and it is of the highest importance that in these catalogues the names of the animals and the dam and sire of each are given, being of so much more consequence than a mere entry of numbers, which often necessitates considerable research before the truth can be elicited.

A rather long interval in important sales here occurs, for it was not until 1829 that Mr. Mason of Chilton held his sale. Earl Spencer, it is said, bought a bull and sixteen cows and heifers; Captain Barclay (who began in 1822) laid a still more solid foundation with lot 20—Lady Sarah. The fame of the stock also brought buyers across the Channel. Mr. Latouche would not leave Monarch (2324) at 270 guineas; Mr. R. Holmes of County Meath raised his best tribes from lots 1 and 8—Victoria, own sister to Monarch and Britannia by Monarch; while the stock of Highflyer (210 guineas) marked the commencement of a zealous novitiate in Kent. Whitaker of Burley held his first sale soon after. He had always gone for milking tribes in his quiet Yorkshire valley, and laid much stress upon the purchase of Magdalena by Comet (155), the only cow which was kept out of the Ketton sale catalogue. The Americans, and especially Colonel Powell and the Ohio Company, had heard of her and her thirty-two quarts a day in their repeated visits to Burley. They generally left Yorkshire with the belief that in the north twenty such cows as Mr. Whitaker's could not be found, and they were amongst his best customers for a series of years.

Sir Charles Knightley gradually became quite a Whitaker to the midlands when he gave up hounds, about 1818, and obtained the Rosy and Ruby tribes of Shorthorns and his friend Arbuthnot's bulls. He strove to put shoulders on his cattle as perfect as those of his own hunters Benvolio and Sir Marinel. Beautiful fore-quarters, gay carriage, general elegance, and a strong family likeness distinguished his tribes, and their fine milking powers placed them (like Cold Cream and Alix at the Royal home farm) at the head of many a dairy, and "a Fawsley Fillpail" soon passed into a herd proverb. We have some notes referring to the transmission of colour in the descendants of certain choice Shorthorns. These notes date from 1810, compiled by Major Bower, prove how fond the Shorthorn breeder was of his art, and we have it pointed out that the Yellow cow was that from which the Cambridge Rose tribe descends. It is a matter of continual remark what an element of yellow there is in the colour of the Cambridge Roses. Some calves are borne to bulls of this strain quite of a golden yellow dun. It is stated, also, that the old breeders valued the yellow tinge, which certainly exists in the coats of Booth, Knightley, and Barmpton Rose cattle; but its occurrence amongst the Cambridge Roses is recent. Curious that so far back amongst their ancestry is so positively recorded a Yellow cow (not yellow red, the beautiful Grand Duke fourth tint and Hubback's) but positive yellow, and that in the possession of so valued a breeder as Mr. R. Colling. The same writer says: "Curiously enough, I have seen quite lately a calf descended on one side from a Killerby bull with a white face like a Hereford. At Sholebroke one of the daughters of the finest cow in the world, Grand Duchess XVII., has a very Hereford face." How strongly this shows the tendency of type to reappear.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—We recently noticed that the earliest-sown Mangold seed had failed to vegetate freely in consequence of the heavy storms at the beginning of May, which had so beaten down and hardened the surface of the soil; and the land having been ploughed and reseeded, the second drilling having been done with another dressing of 3 cwt. of bone superphosphate per acre, the young plants

now look strong. Another field not having failed in plant, the horse-hoeing and hand-hoeing, together with hand-singling, having been completed, the roots looked well and growing fast. The field hay crops are abundant where a good plant of Clovers and Sainfoin was obtained. In the park and pasture lands the crop is not only as good as we have ever seen it as to bulk, but the herbage is better than usual, as the finest Clovers, such as Snickling and Permanent Red Clovers, prevail, and give this sort of hay a value for feeding horses such as it very seldom possesses, especially for horses engaged in fast work, such as hacks, hunters, carriage horses, &c. The white Victoria Oats, which are grown from seed supplied by Mr. E. G. Oakshot of Reading, is one of the finest crops we have ever seen, although growing upon a thin gravelly soil. The rough chaff-white Wheat is very thick with good ears, but they have come out rather irregularly in consequence of the low temperature prevailing up to this date. The work of the farm will now consist in preparing the land for common Turnips, such as the Greystone and Red Mammoth, which we consider the best sorts for general growth, for they not only grow very quickly and come to hand for early feeding, but they will keep and retain their feeding properties longer than any variety except hybrids.

The work of earthing-up Potatoes where late planted should now be completed as soon as possible. Where the home farmer has provided himself with large beds of plants such as he may require, like Cabbage of sorts, Kohl Rabi, Thousand-headed Kale, Broccoli, &c., they may now be planted out. We do not approve of stretching the land for this crop, except after a fallow preparation, as when the land is clean, or only a few bunches of couch are to be found, we prefer to once plough the land after a green crop cleared off, either of Vetches and Trifolium; then by laying out fresh box manure and raking it into every third or fourth furrow we have the opportunity of spade-planting, and setting the plant directly over the manure. In the same way we strew artificial manure, mixed with damp ashes, along the furrow. In this way the land is sure to be moist and favourable for the young plants. Nor is it of any consequence if dry weather prevails, because in spade-planting the rootlets of the plants reach the subsoil without dry dusty soil running in with them. We also take care to plant wide enough between the lines to give room for effectual horse-hoeing; and in the case of more plants requiring to be planted to the rod we place them closer in the lines without altering the distance between the lines. If, however, a few lumps of couch show themselves they should be forked out by men or women at so much per acre, by which means it is more surely eradicated than by extra ploughing before either drilling or planting; and we have always found that it answers a good purpose, and that 5s. spent in hand labour often saves 20s. or more in extra horse labour, irrespective of the time gained, because extra ploughing cannot be effected without loss of time, and we further contend that the time gained is often equal to a certain outlay in manures. The advantage of once ploughing over cultivating by more ploughings, harrowings, rollings, &c., is shown in the fact that fewer weeds appear after once ploughing and immediate seeding or planting.

Hand Labour.—The hedge borders may now be cut the second time, the first cutting having been done in the early part of the month of May. This grass in many districts furnishes capital food for young growing stock in the boxes, for milch cows, and also for breeding sows in the yards, for these border trimmings in the sandy and gravelly or chalky soils contain many herbs mixed with coarse grasses; and when the horned cattle get a few pounds of cotton cake, according to age, they do quite as well as if they received Clover and Rye Grass, the produce of the arable land.

Live Stock.—Horses and horned cattle feeding in their boxes should now have the Clovers supplied them unless there is a succession of summer Vetches available, or, what is better, Trifolium, for we always advocate three sorts of this latter fodder to be grown. First for use we have early crimson blossom, the second early pink blossom, and for use in the early part of July we sow the perfect white-blossomed variety. In feeding cattle for the butcher in the boxes upon arable farms it is a matter of immense importance that they lie quietly in their boxes without being teased by flies, and receive a full bait of green Clover, &c., three times a day, and their cake they should get in the meal state, and given twice a day mixed with a little cut Mangold, which we always reserve as a rule for this purpose until early Turnips or Cabbages are ripe for the purpose. The advantage of cutting Clover, Lucerne, or Giant Sainfoin to feed cattle with is very great, and is found in the fact that an acre of Clover will make twice as much beef as it would if converted into hay, irrespective of risk and cost in making, stacking and cutting out; besides which, the value of manure when bullocks are thus fed far surpasses any other box manure. The same argument applies with reference to working farm horses, as we have found for many years in our own practice. To obtain early lambs for the Easter market well-bred Dorset Down ewes should be obtained, although some prefer the Hampshires; still the Dorsets will breed earlier, if well kept, than the latter breed. At Stockbridge on the 10th, Overton on the 18th, and several other fairs in Hampshire, some of the best Hampshire ewes are sold, and if taken home, put upon good green feed, with a few cracked beans and a little cake, and mated with a kind Sussex Down ram, will in most cases, particularly in some of the rich vale and sheltered districts, almost insure an early fall of lambs about Christmas, and by care and good feeding the lambs and ewes may be sold fat together at Easter.

POULTRY AND PIGEONS

MANAGEMENT OF THE PIGEON LOFT IN SUMMER.

It is not long since we commented on the fact that it seems a peculiarity of the present season that Pigeons are extremely tardy about laying, and even some fail to lay at all. We cannot account for it, save on the supposition that the very warm winter failed to brace them, and in many cases caused them while unpaired to lay frequently. It seems an appropriate time to say a little about the treatment of such hens, and about barren hens in general. In all our poultry experience we hardly remember to have met with hens totally unproductive save from accident or age. With Pigeons it is far different, and from some cause or other many hens either for a time or permanently fail to lay. That such is the case is evidenced by the frequent appearance in advertisements of or for Pigeons of the word "a breeder." Many hen Pigeons undoubtedly are not breeders. The origin of their failure is, we have little doubt, to be traced to in-breeding and to the unnatural way in which Pigeons are often kept. We have bought many a barren bird, and have in many cases eventually had produce from them. We never remember to have found a hen bred and kept in our own aviaries unproductive, simply, as we think, because our Pigeons have much air and exercise, and live a natural life. We have, however, had complaints of birds reared by us, but sent to live mewed up in lofts and cages, proving barren. Because a Pigeon fails to lay for months, or even through a whole season, there is no reason to despair of her ever laying again; and even a bird which never does lay at all may be made useful as a foster-mother, or may win honours in the show pen. We will speak separately of those birds which there is hope of curing, and of those which we can only hope to make useful in other ways than as parents.

1, When a pair of Pigeons have been mated at a proper season—i.e., late winter, spring, or early summer—have been put in a suitable house or loft, are well fed, and not disturbed by other Pigeons, we may reasonably expect to see them making a nest within a fortnight, and in a few days to find that the hen has laid her first egg, which in less than forty-eight hours should be followed by a second. If, however, the cock seems ever carrying sticks and straws to no purpose, while the hen continually arranges them; if she sits day after day on the nest without looking at all drowsy or unwell; if she ever bustles from her food back to the nest, and guards it fiercely and jealously without depositing any eggs in it, there is some presumption that she is barren. Some hens will go on for months in this way. When the incubation of eggs is really going on it is the custom for the hen to sit from 4 or 5 o'clock P.M. till 9 or 10 A.M., and for the cock then to take her place through the day; but these poor deluded make-believe mothers hardly ever quit the nest or make way for the cock, save to feed once or twice a day. The cock is usually very patient, though after a time he occasionally makes a second nest in hopes of better luck there, and tries to tempt his mate to change her position; she sometimes complies, and goes on again with her imaginary incubation. Now and then, after months of hope deferred, he will take up with another bird, but not very often. When from such signs it is evident that a hen is not likely to lay, a pair of eggs, or even a single egg, should be taken from some other pair and given to her. She will seldom, if ever, fail to adopt them at once, and to prove an exemplary foster-mother. When the young birds are three or four weeks old the critical time will have come to see if the hen actually lays. Of course, if she is an absolutely barren bird she will only begin again the same sham incubation, but if she has only been weakly then she will probably lay now. We have sometimes had a second time to repeat the giving of suppositious eggs; indeed, we have known hens fail to lay through a whole season, but breed well the next year.

2, If after several such attempts at a cure a hen Pigeon prove incorrigibly barren, the only thing is to make the best use of her we can. If she is an exhibition bird she will keep in the best show condition. Nothing spoils Pigeons so much for show as feeding their young. The food is constantly scattered on their breasts, which become soiled and dirty, and the short-beaked varieties appear less good than they really are in that point; while those that should be gulletted seem altogether to lose their development of throat. Absence from all the ordinary maternal cares thus keeps a hen Pigeon in good condition. Even if she be useless for the show she may prove invaluable as a foster-mother, and should be systematically used for that purpose. In the first place pair her to a strong healthy cock, for none but perfectly healthy and vigorous birds should be allowed to feed nestlings. Then watch for the laying of any hen that is weakly or that has proved an indifferent

mother, and transfer one of her eggs to the barren bird. Some pairs will bring up one squeaker well, but always fail to rear two. One of their eggs should always be transferred. As a rule eggs can only be interchanged between pairs which have begun to sit at nearly the same time. The Pigeon ordinarily incubates about seventeen days; will desert its eggs if they do not hatch by the twentieth to twenty-second day, and should eggs under her hatch before about the twelfth day will not yet have Nature's provision of soft milk-like food in the crop for the newly-born nestlings. These barren birds are, however, much more accommodating; they will sit longer, and will provide for young birds which appear long before the natural time. We have often given eggs to one within a week of hatching; and quite lately in the case of a hen (an excellent layer and mother last year, which has thus far done nothing but build nests this season) we gave her straight off a squab two days old. We put an egg into the nest at the same time to tempt her towards the young bird. For some minutes she looked with suspicion at the little intruder, then her maternal instinct seemed to get the better, and she crept on to the egg and the little Pigeon. After some hours she seemed not to have fed it, but her warmth kept it alive. We removed the egg, and by the next morning the young bird was well fed, and has been so ever since by both parents. Thus an apparently useless bird, which one who had not closely watched the habits of the domestic Pigeon would not unnaturally be inclined to kill, may be made of the utmost use, and the unproductive may really bring up more young ones to maturity than the productive hen. A fancier who does not know how to utilise such would-be but disappointed mothers has still something to learn in Pigeon lore.—C.

OUR LETTER BOX.

Improving Grass Land (G. M.).—You do not state the nature of the soil, nor whether the land has been properly seeded with permanent pasture grass seeds, nor how long it has been in grass. The field may require draining if the land is strong and wet; and if it is sour as well as poor, which is indicated by the twitch grass prevailing, it should have dressings of chalk or lime made very fine before being spread. We cannot, so far as we understand the case, recommend the expense and trouble of breaking up the pasture and cleaning and cropping the land, because if that were done and reseeded it would take five or six years before the best grasses indigenous to the soil would appear, and not then except it was liberally dressed every year; whereas if an earthy compost of soil and yard or town manure was laid on every autumn, and a dressing in the spring every year of about 4 cwt. of bone superphosphate mixed with 1 cwt. of nitrate of soda per acre, this would bring good crops of valuable grasses, and the twitch and other weeds would disappear. In other words, if the same money were laid out in manure as would be expended in breaking up and cultivating, it would produce good pasture in the shortest possible time. If 10 lbs. per acre of White Dutch Clover seeds were sown after the earth compost was laid on in August, and harrowed in with the chain harrow, it would prove advantageous.

Houdan Fowls (A Gardener).—We have kept these birds in small space, and found them what they had been represented—namely, very hardy, easily acclimatised, of good constitution, and bearing confinement; prolific layers of large eggs, and very fertile. Choose birds with large frames, short legs, black and white plumage, free from any other colour; comb of cock not large, neat and even in appearance; in the hens very small; crest, beard, whiskers, and fifth toe well developed in both sexes.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1882.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
June.										
Sun. 18	29.736	58.5	51.2	S.	51.3	65.1	51.2	108.4	50.0	0.157
Mon. 19	29.767	58.2	53.0	W.	55.8	67.3	46.7	130.0	44.3	0.023
Tues. 20	29.893	62.1	54.5	S.W.	56.0	69.0	49.3	106.0	47.0	—
Wed. 21	29.927	58.7	56.6	S.W.	56.7	66.9	51.2	95.2	45.9	0.019
Thurs. 22	29.804	57.2	56.2	S.E.	56.9	64.4	55.8	76.4	54.8	0.043
Friday 23	29.886	60.7	53.3	S.W.	56.4	67.4	47.2	115.6	43.0	—
Satur. 24	29.990	62.2	57.3	S.	56.3	70.8	49.8	116.6	45.9	0.370
	29.863	59.7	54.6		55.6	67.3	50.1	106.9	47.3	0.642

REMARKS.

18th.—Cool and showery; sunshine at intervals.

19th.—Dull and showery.

20th.—Very bright early; afterwards overcast but fair.

21st.—Overcast; slight showers in forenoon.

22nd.—Showery during day; fine bright evening.

23rd.—Fine throughout.

24th.—Fine bright morning; afterwards overcast; slight rain in evening; heavy after 9 P.M.

Variable with light showers, temperature higher than last week, but still below the average.—G. J. SYMONS.

